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Report of the Summer Excavations at Troy.

OUR readers are already aware that the excavations at Hissarlik, brought to an untimely end by the death of Dr. Schliemann, in 1890, were resumed this year by Dr. Dörpfeld, the necessary funds being placed at his disposal by Mdme. Schliemann. The work was begun on May 1, and went on to July 11. Dr. Dörpfeld took with him as coadjutors—for architecture, Herr W. Wilberg; for Greek archæology, Herr A. Brückner; and for prehistoric remains, Herr R. Weigel. The full publication of the discoveries is to appear in the course of the winter, meantime, a provisional report is published in the last issue of the *Athenian Mittheilungen* (band xviii., zweites Heft).

We are glad to see that the results of the expedition have considerably exceeded the hopes entertained. What precisely these results are will best be understood by a brief *résumé* of the state of the case when Dr. Schliemann closed his work in 1890. In the "Ilios," or "Troya," it will be remembered, seven strata, or "cities," are noted and described. Dr. Schliemann's last excavations increased the seven to nine. Besides the sixth, or, as he called it, "Lydian" stratum, and the seventh or Roman one, two other strata came to light, which, from the objects found in them, unmistakably belonged to respectively early and late Greek dates. A further result of the 1890 excavations was that the date of the sixth stratum was fixed, and two buildings of substantial dimensions found within it. Besides the so-called "Lydian" pottery he found in this sixth stratum, there came to light a mass of fragments and some whole vases of the "Mycenæ" ware. From this it was deduced, and rightly, that in the sixth stratum, to which hitherto but little attention had been paid, we have a civilisation contemporary with that of Tiryns and Mycenæ. It was tempting to go further and see in this stratum the city of the Trojan War; but as two buildings only had been brought to light, and no city wall could with certainty be identified, it was felt that till the sixth stratum was fully explored any such conclusion would be rash. The city lying two strata beneath, with its imposing remains of dwellings, city walls, towers, and gates, had strong claims to preference, but the objects found within that stratum were inconveniently primitive and distinctly pre-Mycenean.

This doubt, this divided claim between the second and the sixth stratum, to be the "Homeric Citadel," has been by the recent excavations completely set at rest. The sixth stratum, of which a considerable part has been completely excavated, has shown itself to be the most imposing fortified citadel that ever—previous to Roman days—occupied the hill. The remains of seven large buildings have been laid bare. Their ground plan is something like that of a Greek temple, and of the *megara* of Tiryns and Mycenæ, but their proportions are larger and the masonry superior. The most striking of the buildings discovered is a large hall situated about the middle of the citadel. The hall itself is 9 metres broad by 11½ long, and it is furnished with a portico, oriented N.W. From the remains of stone bases the hall seems to have been divided by three wooden columns into two naves; it seems, in fact, to have closely resembled the temple excavated by R. Koldewey, at Neandria. Whether the building at Hissarlik is actually a temple or not, cannot at present be decided.

The citadel of this sixth stratum is fortified by a wall 5 metres broad, and in some parts still standing several metres high. The north-east corner is faced by a massive tower about 18 metres in width, and still standing over 8 metres high. In size, solidity, and finish of work, this tower is second to none other of Greek date—in fact, so admirable is the masonry, that the suspicion might have arisen that it was of historical date; but fortunately in parts it can clearly be made out that in historical times it was added to and built over. Within the seven buildings of this sixth stratum have been found abundant remains, not only of the local "Lydian" ware, but also of Mycenæ fragments; moreover, between this sixth stratum and the one of Roman date, two intervening strata are clearly to be made out, hence it seems evident that in the sixth stratum, if anywhere, we have the veritable Homeric remains. Its area is about that of the citadel at Tiryns, and is at least double that of the "city" of the second stratum. It stands about 28 metres above the plain.

Whether to this citadel there corresponded a lower city in the plain, as is the case at Mycenæ, is as yet undetermined, but from tentative excavations made it seems probable. About three-quarters of a mile south of the Acropolis a quantity of "Lydian" fragments were found, and mixed with them Mycenæ pottery, and one urn came to light of pottery corresponding to that of the sixth stratum and with traces of burial by burning, and which, of course, all agree well with Homeric methods.

Supposing that the sixth stratum *is* the Homeric Troy, it follows, of course, that the substantial city of the 2nd stratum must go back to a date earlier than that of any similar European structures — probably to 3,000 years B.C. — and even earlier must be the primitive settlement of the first stratum. In order to satisfy himself that the stratification thus arrived at was really correct, Dr. Dörpfeld sank a small shaft on a portion of the hill still untouched; in this experiment he proceeded with precautions unfortunately neglected on Dr. Schliemann's work. As each layer was reached, its contents were noted, and before any masonry was removed to reach the next layer it was measured, drawn, and photographed. The result was that the consecution of strata noted in 1890 was completely confirmed, even to minute subdivisions. For clearness sake we give the strata as now established, divided, as Dr. Dörpfeld classifies them, under three main heads:—

I. Pre-Mycenean or pre-historic strata.
  (*a*) Primitive settlement = first stratum.
  (*b*) Imposing fortified citadel with dwelling-houses, citadel walls, towers, gates = second stratum.
  (*c*) Three unimportant settlements erected on the ashes of the second stratum = third—fifth strata.

II. The Mycenean stratum or the Homeric Pergamos = sixth stratum.

III. The post-Mycenean strata.
(*a*) Archaic dwelling-houses = seventh stratum.
(*b*) Græco-hellenistic dwelling-houses = eighth stratum.
(*c*) Imposing Roman structures = ninth stratum.

We have given here an abstract of the report in the *Mittheilungen*—the opinions are those there expressed—till the actual material is published independent opinion will necessarily be impossible. On his own supposition that the sixth stratum is the Homeric Troy, Dr. Dörpfeld is full of natural regret that Schliemann himself did not live to see the palaces of Troy exhumed. He did see the first structure discovered, and a few Mycenæ vase-fragments, and recognised their importance. Much of the sixth stratum still remains undiscovered, but we are not told if Mdme. Schliemann continues next year her work of pious memorial.

CONSTRUCTIONAL ARCHITECTURE AT THE CHICAGO EXHIBITION.

UNDER the head of constructional architecture a variety of architectural exhibits may be conveniently grouped without reference to their classification or their mutual relationship one to another. Some that properly belong to this topic have already been considered in treating of stone and brick; others not so related may now be taken up. Most of these are of American origin, few foreign countries, as we have previously pointed out, being represented in architecture or allied subjects. Belgium, which is the most voluminous non-American contributor to architecture and its allied branches, sends a very good representation of the products of the Vieille Montagne Zinc. Co. The exhibit is housed in a small zinc pavilion, of very bad design, by the way, and consists of models of the various forms of roofing made by this company, with actual specimens of the materials. The models of roofs are well made, and the variety of forms interesting and good. A special representation is made of the double-ribbed zinc roofing plates, in which extra strength is sought by double ribs instead of the ordinary corrugated or roll cap surface.

Roofing materials of various sorts are well represented in the American section. These fall naturally into two classes, roofing tiles and metallic roofing. Metallic roofing is apparently the more popular of the two, and several forms of it are shown. The Canton Steel Roofing Company, of Canton, Ohio, show an extended line of metallic roofings, including Bessemer steel, galvanised steel, American tin plate, and corrugated steel and iron, together with a variety of appliances and applications of these materials to building. The most interesting feature is what is called the "H. W. Smith Patent Folded Lock Standing Seam Steel Roofing," consisting of flat steel plates joined by folding the cleats and edges together, thus forming an interlaced joint of great strength and compactness. The Cortright Metal Roofing Company, of Philadelphia, Pennsylvania, show an assortment of metal tiles and shingles. These are applied in the usual way, the joint being effected by an expansive side lock, one sheet hooking into the other in a manner that prevents them becoming unfastened after being laid. The specialty of this firm is the production of a metal roofing that will similate clay tiles in appearance.

A small variety of terra-cotta tiles are shown, including collections from several foreign countries. None of these, however, exhibit any special novelty or merit in the manner of application, nor do the quality or shapes offer much variety. Carl Ludowici, of Ludwigshafen-on-the-Rhine, makes a small exhibit in the German section of the Mines and Mining Building of roofing-tiles fitting into each other without needing a board base. The Celadon Terra-Cotta Co., Limited, of Alfred Centre, New York, show various styles of interlocking tiles. Their "interlocking cones" produce a roof of considerable boldness, and can be applied in a variety of forms with pleasing results. They also make a line of interlocking tiles of different configuration and character, capable of producing a great variety of combination. A cement roofing is shown by John C. Zallee, of St. Louis, Missouri. It consists of an outer layer of cement held in place on a board bottom by flat top hooks, driven into the boards and partly projecting.

One or two American firms send samples of wire lathing, which is so valuable an adjunct in fireproof construction. The largest of these exhibits, and, in some respects, the most interesting, since it is quite full and complete, is that made by the New Jersey Wire Cloth Co., of Trenton, N. J., who manufacture what is known as the "Roebling Standard Wire Lathing." In this lathing the mesh is made rectangular in shape, instead of square, with the advantage, it is claimed, that the special plastering compounds that are now largely used may be employed with it without the loss that ensues from widely-spaced meshes. It is also claimed that it holds the plaster better than ordinary wire lathing, and that a large percentage of saving may be affected in the amount of plaster employed. The exhibit includes walls and ceilings, showing the lathing in practical application.

The Byrkit-Hall Sheathing Lath Co., of Chicago, make the most important exhibit of wood-lathing. Their product consists of boards cut in deep grooves, the boards interlocking in the usual way. It permits an economical form of construction, since the outer surface of the lathing can be used, in a wooden building, as a base for the outer covering, and the inner surface can receive the plaster without other furring.

In constructive glass only one or two exhibits can be mentioned, The American Wire Glass Manufacturing Company, of Philadelphia, exhibit examples of their so-called wire glass, which, as its name implies, consists of a sheet of glass having imbedded in it a sheet of wire netting, which can be made of any size or pattern. Not only is it claimed that a stronger glass than the ordinary sort is produced by this means, but that it lends itself especially to large skylights, since the wire netting sometimes stretched below them to protect passers-by from falling glass may be dispensed with. It is also claimed that this material can be used in place of the ordinary bull's eye pavements, though we believe no actual experiments in this direction have been undertaken.

Henneberg Brothers, Nyon, Switzerland, make an extensive exhibit of Falconnier's Glass Brick, for greenhouses, conservatories, photograph galleries and the like. They show a conservatory built wholly of this material, and a small office, in which the glass bricks of various forms and colours are employed for walls. The bricks are light, and the plain glass, which is chiefly used in six-sided shapes, makes a pleasing and effective material for the special uses to which it is put. A. E. Rendle & Co., of Philadelphia, show a large number of greenhouses constructed by them on their iron and glass system. These form part of the horticultural exhibit, but they also show a section of their patented skylights in the Manufactures Building. Special stress is laid upon their new patent "paradigm" system, in which no wood whatever is used, a steel channel bar being used throughout, wholly protected from the weather by the glass and by small copper caps covering the bolt openings.

The Gardner Sash Balance Company, of Chicago, make a fine exhibit of their window pulleys and sash ribbons. These, as the name implies, consist of steel or aluminium bronze ribbons running over noiseless axle pulleys, in place of the ordinary sash cord. The ribbon will not catch, kink, or get out of order, and presents manifest points of superiority to the ordinary rope cords.

In constructive iron scarcely anything at all is shown, even the large American manufacturers being unrepresented. This singular condition of affairs arises, we understand, because the space offered was not deemed sufficiently large for the larger firms to display their products in a satisfactory manner. The most important displays of constructive ironwork on the Fair grounds are, therefore, the trusses and other ironwork of the buildings themselves. The chief points of these very notable constructions have already been noted in previous articles and need not be rehearsed afresh here. The lack of an adequate display of constructive iron is serious, since this is a feature on which American builders especially pride themselves, and some notable exhibits might naturally have been looked for. In striking contrast to the action of the American iron firms is the exhibit made by the famous German firm of the Gebrüder Stumm, who control the largest ironworks in Germany, next to those of Krupp. Their exhibit is placed in the Mines and Mining Building, and though occupying a relatively small space is very complete and arranged with great taste and care. It comprises a full line of the firm's products, with examples of finished and unworked metal, pipes, I bars and beams, structural shapes, models of works, and sundry other features, all arranged in a rather sensational manner in pyramids, monuments, and other architectural forms. Special mention may be made of two obelisks of I beams and structural shapes, one of steel, the other of iron. An extraordinary number of large bent pieces are shown, all bent cold and showing the thoroughly homogeneous nature of the material and its great tenacity, and finished in a beautiful manner. Among these mention may be made of a rail 180 ft. long, bent cold into a series of scollops. The collection of iron pipe is also large and complete, and the whole display is worthy of the warmest praise. It is a curious commentary upon the Exhibition that in a country so rich in iron, and containing so many iron mills and furnaces, on this great occasion the most important display of this national product should be from a country so distant as Germany. It may be added, in passing, that the exhibit of Krupp at the Exhibition far surpasses that of Stumm in extent, but it is chiefly composed of guns and armour-plate, and need not, therefore, be considered in the present connexion.

Although there are no exhibits of American structural iron, there are a variety of elevators shown in the American section. According to the classification these properly belong to the department of Transportation, and the larger part of the machines are housed in that building. But the elevators employed in most of the Exhibition buildings, where they are very necessary, owing to the great height, and the fact that galleries are introduced, and even the roofs occupied by restaurants or as places from which views of the buildings may be had, are classed as exhibits also, and as they are in practical operation they afford the best possible means of exhibiting their workings. The well-known firm of Otis Brothers & Co., New York, have eight elevators in the centre of the Transportation Building, carrying passengers to the roof; eight in the Administration Building, four in the Manufactures Building, all leading to the roof, and five in the Casino Building. Those in the Transportation Building and the Casino are hydraulic elevators; those in the Manufactures Building electric. In addition they have, in the Transportation Building, an exhibit of elevators, elevator engines, and other apparatus, which may be considered their exhibit proper. This firm now chiefly employs electricity for passenger elevators. They show, among other machines, a Multiple Geared Electric Elevator Engine, a very large and complicated piece of machinery designed especially to attain very high speed. This machine, it is claimed, can run 800 ft. per minute, a swift normal speed being 350 ft.

They also show, in practical operation, attached to an elevator running to the gallery over their exhibit, a "double worm gear electric elevator," the special feature of which is two wheels working into each other, and a double worm, thus preventing loss by friction. Other machines are steam hoisting engines, pumps for hydraulic service, iron platforms for furnaces, mines, and heavy freight service.

Morse, Williams & Co., Philadelphia, show their direct electric elevator. This machine is designed to obtain simplicity of construction and accessibility of parts in repair, and attains a speed as high as 250 ft. per minute. The worm-shaft, to which the motor is attached by a pulley, is provided with a powerful double shoe brake, which is released by the action of an electro-magnet and applied by weight. By this arrangement the brake would be immediately applied were the electric current cut off, and the machine is stopped. The car is provided with a slack cable stop, which acts automatically if the car should become obstructed in descent, and by an arrangement of stop collars and nuts the car is automatically brought to a standstill at terminal landings. An electric elevator is also shown by the Elektron Manufacturing Company, of Springfield, Massachusetts. This machine is one of the newest in America, though the points of difference with older machines are not, perhaps, very marked. General compactness and excellence of workmanship are claimed by the makers. The current only acts when the machine is set in motion, and it is claimed that this system permits a considerable saving in cost, as compared with those machines in which the motor is continuously in motion. The car is supplied with the usual safety devices; the switch and break are operated by the same mechanism, so that when one is off the other is on, and *vice versâ*. A special safeguard, introduced in some instances, is a safety hatchway switch, placed just above the upper landing, so that in case the usual automatic stops and breaks refuse to act, the car itself will open this switch and thus stop the motor. In both the Morse and the Elektron elevators the manufacturers supply the elevator and motor complete as a single machine. An elevator shown by the Smith-Hill Foundry and Machine Company, of Quincy, Illinois, can be applied to any electric motor or steam connexion. The distinguishing feature of the hoisting apparatus is a ball-bearing to take up the friction due to the thrust on the worm shaft. The car is supplied with the usual safety apparatus, one of which consists of a toothed wedge under the car connecting with the wires carrying it, and which brings it to a standstill in case of breakage of the wires. This elevator is supplied with the Zeller automatic safety gate, made by the Richmond Safety Gate Company, of Richmond, Indiana, which automatically closes and opens as the elevator rises or descends. This is a very convenient device for freight elevators, but quite unsuited for passenger service. Pneumatic elevators are shown by the Eaton and Prince Company, and the Miles Pneumatic Tube Company, of Boston. Neither of these seem to embrace any special novel feature. Two pneumatic elevators, like the others in actual operation, are shown in the California State Building by the Cahill and Hall Elevator Company, of San Francisco, California. The Crane Elevator Company of Chicago, make a fine display of elevators, machines, cars, and various sorts of hoisting apparatus in Machinery Hall. Their exhibit consists of a good display of their manufactured products, and, in addition, three elevators carrying passengers to the gallery of the Hall, and operated, respectively by electricity, steam, and hydraulic power. In completeness and variety this exhibit is one of the most interesting of its kind in the Exhibition. One or two small exhibits of hoisting apparatus and elevators, designed chiefly for freight service, are also shown in Machinery Hall, but do not call for special mention. In this connexion reference may be made to the large exhibit of the American Hoist and Derrick Company, of St. Paul, Minnesota, which is placed outside Machinery Hall, and consists of derricks for heavy lifting in exterior work or in building, with the necessary hoisting machinery, all shown in practical operation, and in a very complete manner.

Very little is shown in the way of fire apparatus, fire-escapes, fire-engines, and the like. The Providence Steam and Gas Pipe Company, of Providence, Rhode Island, show the well-known Grinnell Automatic Sprinkler in practical operation. The Chicago Automatic Fire Escape and Manufacturing Company show an automatic apparatus to be used as a fire-escape. It consists of a cable wound upon a wheel, to which one is attached by a rope passed round the waist. The weight of the body is sufficient to start the machine, the rate of speed being controlled by a centrifugal governor. In descending, a steel band or spring is wound up within the wheel, so that as soon as the weight is removed the cable returns automatically to the machine. In the British section, Messer & Thorpe, of London, make a small exhibit of their bucket fire extinguisher, consisting of a cover reservoir containing nests of fire-buckets, telescopically stored in water, and thus constantly ready for use.

The sanitary exhibits are separated into two parts, one of which is placed in the Manufactures and Liberal Arts Building, the other in the Anthropology Building. The basis of this division is not at all clear, exhibits of the same character being found indifferently in one or the other building. Save the United States, no country makes any considerable display in this department. In the American section in the Manufactures and Liberal Arts Building several varieties of bath-tubs are shown. The display made by the Standard Manufacturing Company, of Pittsburg, Pensylvania, is the largest. They show, among other things, chiefly taken from their ordinary stock of porcelain-lined tubs, a model bath-room, costing nearly 1,000*l*. The walls and floor are of imported tile, and the bath-tub, foot-bath, sitz-bath, stationary washstand, and water-closet, with their fittings, are of the best workmanship and finely finished. This firm makes a speciality of porcelain-enamelled roll-rim bath-tubs, a considerable variety of which is shown. The Steel Bath Manufacturing Company show a line of tubs constructed with an outer shell of steel and an inside lining of copper. The tub stands on metal feet, and is without any woodwork whatever, save the rim, which is of polished wood. Portable bath-tubs are shown by two firms, the Mosely Folding Bath-Tub Company, of Chicago, and the Day Manufacturing Company, of Detroit, Michigan. Both are similar in idea, and are heated by portable heaters using gas or gasiline. These goods are chiefly for use in country houses, or in small towns without water service, and thus apparently perform a useful function. Some of the tubs show an endeavour to approximate so-called "ornamental" pieces of furniture, some being shown in ornamental cases, others wholly covered with plush, thus resembling a sofa when closed. Anything more preposterous than this in the way of decorative utility it would be impossibie to imagine. A very light tub, made of vegetable fibre, is shown by the Oswego Indurated Fibre Company, of Oswego, New York. It differs only from the ordinary tub in the material of which it is made. Several forms of portable heaters or geysers are shown, none of which embraces any especially novel idea. English exhibits in this department being so rare, a small collection of geysers by Ewart & Son, of London, may be mentioned. It has been placed in Machinery Hall.

Porcelain stationary wash tubs are shown by the Stewart Ceramic Company, of New York. They are of the ordinary type of stationary tub, supplied with a corrugated surface in the inside front as a wash board, and thoroughly well glazed. Similar tubs and sinks are shown by the Albyrene Stone Company, who make their tubs of albyrene stone—a stone somewhat resembling soapstone. The stone they use can be readily sawed, and perfect accuracy of jointage is claimed. The Kilbourne and Jacobs Manufacturing Company of Columbus, of Ohio, show some wrought steel sinks that have some merits of cleanliness and convenience. The sink is made from a single piece of steel, the bowl and thimble being stamped in one piece from the same plate. A readily applied coupling, connecting with the waste-pipe, is a special feature of these sinks. A very fine exhibit of stationary wash basins and bathroom plumbing fixtures is made by Peck Brothers, of New York. A large space is filled with a considerable variety of stationary wash-basins, all taken from the regular stock of the manufacturers, who thus make a notable display of their ordinary resources. No new features are shown, though one or two minor devices are not without interest. Mention may be made of a portable shower bath included in this exhibit, finished in nickel-plated pipes and including all the appointments of luxurious shower bathing that is sold at 130*l*. They also show a triple jet water-closet, designed to accomplish a thorough washing out of the basin.

The Sanitas Manufacturing Company, of Boston, Massachusetts, show a full line of their Sanitas apparatus, chiefly water-closets. The distinguishing feature of this is the trap. The principle of its construction is simple enough. It may be illustrated by a simple pot-trap turned on its side instead of placed upright, and with a reduced body, but still permitting the air to pass above the water without driving it before it. In the final form half of the body is bent back, the joining edges of the bent back surface being made a single reflecting partition. Absolute antisiphoning is claimed for this apparatus, which can further be used without ventilation, though it may be used with special trap ventilation if desired. In the water-closet the water from the cistern enters below the water standing in the bowl, an arrangement, it is claimed, which greatly reduces the noise of the falling water. On this point the apparatus is far from satisfactory, there being no less noise than may be noted in many other forms of cistern closets. One feature of this display that calls for special commendation is the section of the water-closet faced with glass, permitting the action of the water in the bowl and trap to be fully seen.

Norton Brothers, of Chicago, show the "Norton Hermetic Seal Noiseless Sanitary Fixture." This is a new form of water-closet, and embraces several points of special interest. The "hermetic seal" which is the distinguishing feature of this apparatus, is a bronze valve, controlling the influx of water and the outlet to the sewer. It is placed below the bowl and above an ordinary ventilated trap, and entirely disconnects the sewer and water supply when not in use, both being simultaneously opened and closed by means of a lever. The valve is the only moving part of the apparatus. At present the apparatus is heavy and costly, but increased use will doubtless result in a diminution of the price. It is entirely noiseless, and in this respect fully supports the claims made for it by its makers. No water, however, is ever in the bowl save for flushing purposes, an arrangement which seems to us very objectionable indeed.

A miscellaneous collection of sanitary apparatus is housed in the Anthropological Building. Several American firms show lines of filters constructed on the pressure or the gravity system, several showing filters of both kinds. The differences in these seem to be more differences of detail than of principle, and as none of them offer anything novel in form or in idea, they

may be passed by without special description. The single exception to this general similarity is the Pasteur filter, in which the filtering medium is made of a specially prepared composition, which is the distinguishing feature of this apparatus. There is little that is interesting shown in ventilation. Ventilating fans of the ordinary type are shown by one or two firms. A small window ventilating apparatus is shown by James F. Almy, of Salem, Massachusetts, consisting of a cylinder, part of wood, part of wire gauze, placed in a shallow box which can be fastened to any window. By turning the cylinder, air is admitted or shut out. B. S. Benson, of Baltimore, Maryland, shows an apparatus for purifying air that clearly requires more extended confirmation than its patentee appears at present able to give it. Air is taken in by a tube from the outside and passed through a series of antiseptic sieves, arranged in a closet-like stand. At the top it passes over a chamber heated by a lamp, and thence by pipes which cool it to an orifice just above the head of the patient lying in bed. The Automatic Fountain and Disinfecting Co., of Canton, Ohio, show their Botsford automatic fountain for holding disinfectant fluids, and which, they announce, is employed to disinfect the public water-closets upon the Fair grounds. As the ventilation of the rooms in which these closets are placed is extremely bad, windows even being kept closed for no apparent reason at all, and as the odours from them are very strong and unpleasant, the value of this statement to its makers is scarcely apparent.

Of general sanitary apparatus the most extended display is made by Capt. M. P. Nadiein, of St. Petersburg, Russia, who shows a large model of his system of sanitary drainage. This apparatus is too complicated to be described in a few words, and it is therefore sufficient to state that it has been constructed with the idea of utilising the human wastes for manure purposes, or reducing the solid wastes to such a form as will permit them to be burned in a domestic stove without offence. Geneste, Herscher, et Cie, of Paris, show two movable disinfectant apparatus, with models of other sanitary appliances, and some fine detailed drawings illustrating methods of ventilation, and the like.

Several models of quarantine stations are shown. Canada sends a very good model of the furnaces of the quarantine station at Grosse Isle, Quebec. Japan sends a beautifully-executed model of the Imperial Quarantine Station at Shimonoseki, Japan, showing the disinfecting furnaces, hospitals, &c. Equally fine is the model of the system of maritime sanitation employed by the State of Louisiana at its Mississippi River Station, and exhibited by the Board of Health of that State. The station was devised to disinfect not only the bedding of any vessel and the clothing of its crew and passengers, but to accomplish the purification of the vessel itself. For this latter purpose the ship is first fumigated by sulphur furnaces placed in the hold and cabins; the floors, walls, and ceilings are then washed with a solution composed of 1 part bichloride of mercury, 2 parts hydrochloric acid, and 800 parts water; all water ballast and bilge water is removed, and any hard ballast, finally, disinfected. The model fully explains the methods employed in this work, as well as the apparatus for disinfecting movable articles. In the same line, mention may be made of a model of a United States Government marine hospital shown in the United States Government Building.

Model buildings and homes for workingmen are not very well represented at Chicago, though several foreign countries send models and drawings. But these are scattered through the buildings, and are hard to find and difficult of access, and a systematic study of their several points of merit is scarcely to be undertaken. New York State has erected a model of a working-man's home upon the Fair grounds. This is designed for country towns and villages where land is plentiful, for though small it is not at all suited for city purposes. The dwelling is of wood, and contains a living-room, kitchen, and bath-room on the first floor, with three bedrooms above. Though compactly planned, the rooms are sufficiently large, and the hall space ample. More interesting, because an actual example of a city dwelling, is the Philadelphia working-man's home, built in the Midway Plaisance. This is a small two-story brick dwelling of the type characteristic of Philadelphia, where the great majority of working-men live in individual homes, and where the tenement is almost unknown. Unfortunately, this building was closed each time we visited it, but it doubtless included, as a type of its class should include, a living room and kitchen below, with two bedrooms and bath above. A model apartment house is shown by E. T. Potter in a small scale model. In this structure light and air at the sides is obtained by recessing the walls, and by building them in obtuse angles of which one side is larger than the other. By this arrangement each family has a vestibule, parlour, one or two bedrooms, kitchen, private lift, coal-cellar, and the like, with six families on each floor. A model of the Riverside Dwellings of Brooklyn, New York, is more interesting. These tenement houses have come to be looked upon as the model structures of their class in America. They are strictly fireproof, being built of brick. Each apartment has its own entrance on the main floor, those of the upper floor opening on to a common stairway, Iron balconies on the front permit further communication between different apartments without the need of dark halls, and at the same time act as fire-escapes.

It is impossible to conclude this brief notice of building materials and sanitation at the Columbian Exhibition without reference to the models of structures of all kinds scattered throughout the Exhibition buildings and grounds. Some of these are in the shape of exhibits of manufacturing firms; others are properly illustrations of works of engineering, but taken first and last the number of these models is very considerable, and if gathered into one place would make a most interesting exhibit of modern utilitarian edifices, though perhaps not of those generally connected with architectural art. Another important group of structures is the models of primitive architecture, sent by various foreign countries, or used as illustrative of the customs and resources of American Indian tribes. The Exhibition includes a large number of these models, most of them being located in the Anthropological building. Many of these, as notably some villages from British Columbia, have been made with the greatest care, and represent the actual structures with great clearness and accuracy. Several actual Indian dwellings are also included in the Anthropological display, and some models of ruins in Yucatan, erected in the open air, deserve mention. Besides these, mention might be made of several native villages in that strange medley of shops, shows, and people known as the Midway Plaisance. These are intended to illustrate the lives and manners of various primitive peoples. The Samoan and Java villages, both of which have been built with great care, are the most interesting of the series, and most ably illustrate, with the people who inhabit them, the life of the people they represent.

NOTES.

THE meeting convened by the Mayor of Sheffield may or may not lead to a settlement of the coal crisis, but in any event it marks a most important epoch in the struggle. The mayor himself speaks most hopefully, and we trust that he may not be disappointed; but a meeting at which a burning question could be discussed at great length "in a very friendly and kindly spirit, without the introduction of a jarring word," cannot possibly be described as wholly unsuccessful. The compromise submitted for the consideration of the disputants is, perhaps, as fair a one as could have been suggested, involving, as it does, some sacrifice on both sides; and it remains to be seen to what extent either or both sides are prepared to gracefully give way on the lines laid down. Opinion varies as to the probabilities in different districts, but it is at least certain that the masters will abandon the 25 per cent. demand. The suggestion is that work be resumed at once at the old rates, and that the miners submit to a reduction of 10 out of the 40 per cent. advance obtained since 1888 in six weeks' time. Now, granting that the wages on which they managed to exist prior to 1888 were quite inadequate, can it be argued that 30 per cent. above that figure is not a "living wage?" If fortune, or a brief period of brisk trade, had favoured them with 50 or 60 per cent. advance, we suppose that we should have been told that the historic 40 per cent. was not a living wage. The men ought to learn from the events of the past few weeks that neither they nor their leaders are infallible in their conclusions as to what is the best policy. This was clearly proved by their change of front concerning the resumption of work question. They threw away thousands of pounds in wages before they would admit their error, eventually accepting precisely the same terms as were originally offered. It is high time for them to reflect whether their other watchwords, "no arbitration" and "no reduction whatever," may not possibly be fallacious. Another lesson which this "industrial reign of terror," as the situation is not inaptly described, should teach, is that it will inevitably turn attention to substitutes for coal as fuel, and expedite the coming period when coal will be less in demand than it is at present. This is a consideration which should weigh equally with masters and men, for, large as our coal trade is, it is not sufficient to keep our collieries going more than three or four days a week for the greater part of the year.

SIR JOHN HARWOOD announced last week that on January 1 next vessels would be free to traverse the whole length of the Ship Canal from the Mersey to the Manchester Docks. A reference to the company's prospectus dated July 20, 1886 shows that it was anticipated that the whole of the works would be completed within four years from their commencement; but it soon became apparent that both time and cost were wofully underestimated. It now remains to be seen how far the directors' estimates as to receipts will prove to be accurate. The near approach of the time when the canal will be in full working order will doubtless cause its competitors to bestir themselves, and the trading public, at least, may look for some advantage from the completion of the long-delayed work. As soon as the Canal Bill was passed in 1885 the railway companies reduced the carriage of bale goods from Manchester to Liverpool 29 per cent., and it is certain that no trade will be transferred to the canal that can be retained by rivals.

MR. RUSSELL ENDEAN'S first letter to the *Times* about the Shaftesbury fountain was absurd enough, but in his second he has surpassed himself. He boasts that no eminent members of the Royal Academy have come forward to defend Mr. Gilbert's work. It does not seem to have occurred to him that possibly they would think they were paying him far too great a compliment in replying to his scolding. Also, notes Mr. Endean triumphantly, "the artist is silent." Just so. In effect, Mr. Endean runs after a very gifted artist and assails him with abuse and contempt in the public streets, tells him his work is an offence against good taste, and so on; and when the artist takes no notice of

these insults, Mr. Endean turns round to the mob and says "There, I told you so! You see he has nothing to say for himself!" It would be difficult to beat that, for sheer impudence, even in the annals of British Philistinism. We observe that Mr. Beachcroft, in the County Council, moved that the fountain should be removed and re-erected somewhere else, and one more worthy of the object erected on the present situation. We fear that nothing that will please artists will satisfy critics of this class. On the other hand it is to be regretted that Mr. Gilbert has to a certain extent laid himself open to the complaint of having evaded the main point of his commission. He was commissioned to design a memorial fountain to Lord Shaftesbury, and he seems to have dismissed Lord Shaftesbury entirely from his mind, and merely endeavoured to make a beautiful fountain. If there had been some attempt to symbolise, in an ideal manner, the character and work of Lord Shaftesbury, the fountain might have been just as beautiful, and the blockheads would have been deprived of a certain semblance of reason in their complaints, which it is a pity they should have. It is giving an advantage to the enemy. We are glad to find that, at all events, Mr. Gilbert's objection as to the injury done to his design by the fence wall round it is to be attended to, and the wall lowered to a curb. As it is, it obstructs the view of what is quite the best designed portion of what may be called the architectural detail of the fountain.

IN regard to our remarks (page 240 *ante*) about the objections raised to the change of the name of Great and Little Queen-street, Westminster, into Atterbury-street, an eminent engineer who has had his office in that street for many years, puts his side of the case to us as follows:—

"I have been in this street more than twenty-two years—seventeen years at No. —— and more than five years at my present number;—and notwithstanding that lapse of time I still have letters addressed to me at the old number. You must remember that there is a good deal of small literature of mine about the world—papers read before different societies—and these mostly have my address on them. Now in five or even ten years' time anybody abroad wishing to write to me will probably get my address from one of these papers, and I want to know where that letter will go to if this street has ceased to have an existence for that number of years. The chances are I shall never get it. It is not a change of address for me, but the absolute wiping off the face of the earth of an address with which I have been connected for nearly a quarter-of-a-century. It would have been better for me five years ago to have moved to an entirely different street, or even neighbourhood, instead of securing a twenty-one years' lease of this house, and for which I paid pretty dearly with the sole object of practically keeping the same address at which I had been known for seventeen years."

Of course we recognise that this is a cause of inconvenience, or at least of anxiety, to a professional man; and we may admit also that there is something to be said for the fact that Great Queen-street had acquired a kind of proverbial repute as an engineers' neighbourhood, and perhaps the County Council would have caused less inconvenience had they altered the names of the streets in the Drury-lane neighbourhood instead of such an exceedingly professional street as that at Westminster. We have no doubt, however, that dwellers in Great and Little Queen streets, Drury-lane, would have made the same outcry; and among them we may mention that the large printing establishment at which this journal (among others) is printed, has occupied its situation in Great Queen-street, Drury-lane, for a great deal longer than our engineering correspondent's "quarter of a century," and would have perhaps a better right to complain; and there are several very old established shops in the same street, besides the historic Freemasons' Tavern. Are people in trade less injured by a change in their old-established address than professional men? Perhaps so, as they are able to advertise their change of address in ways which a professional man could hardly employ. At all events, it is manifestly absurd that there should be a Great and Little Queen-street, immediately contiguous, in two different quarters of the town, and the County Council is quite right in doing away with one of them. The only question is, which should be altered; and perhaps the only thing certain about that is that, whichever is renamed, the inhabitants of that street will say that it ought to have been the other. This is human nature, but there is rather a want of public spirit in it.

THE report of the Hellenic Society mentions, among other points, that special attention has been paid by the Council during the past year to the development of the library. Various purchases of books of some value have been made, and an opportunity has been taken of placing the books in a room more suitable and convenient for their use than that in which they have hitherto been kept. The report gives a very good account of the state of the British School at Athens, which has naturally gained a good deal of additional credit of late by the results of the excavations at Megalopolis. With the Hellenic Society's report is circulated an appeal for aid from the Asia Minor Exploration Fund. The interest and importance of the work proposed to be undertaken, if funds can be raised, cannot be better stated than by quoting from the report the brief statement of the objects in view:—

"I. It is proposed to continue and complete the work of the past ten years by a thorough investigation of districts yet unexplored, and by a re-examination of others—such as Phrygia.

(*a*.) Of the unexplored field the most important part is the upper valley of the Euphrates, where we may hope to find not only very early monuments, but also remains of the Roman frontier defences, lining the right bank of the river. Eastern Cappadocia must also be thoroughly explored, and the remains of all periods found there carefully photographed and recorded. Towards this part of the work the Royal Geographical Society has already made a liberal contribution.

(*b*) A re-examination of such districts as Phrygia is necessary to enable Prof. Ramsay to complete the comprehensive work which he has in preparation on the 'Inland Provinces of Asia Minor.'

II. In addition, it is proposed, for the first time, to attempt excavation. It must be remembered that, with the exception of a few sites on the western coast, Asia Minor is still virgin soil, undisturbed by the excavator's spade."

A sum of 2,000*l*. is mentioned as necessary to carry out (we should say rather to commence) this scheme. It is to be hoped it will be obtained. In some countries a Government grant would be given for such an object; but of course that is hopeless in England.

PROFESSOR POOLE has been fortunate in securing the services of Professor Percy Gardner for a course of lectures on Greek sculpture this term at University College. Professor Gardner is well and widely known for his sound and cautious interpretation of monments, and if students want to learn what is known rather than what is imagined about Greek art they cannot do better than attend the course. The period chosen is from Pheidias to Lysippus, and the first lecture is given on Thursday, October 19, at 5 p.m. The fourth lecture we note is devoted to the school of Polycleitos, and includes, of course, the recent excavations at the Heraion, near Argos. The lecturer will no doubt have something to say on the vexed question of the date of the newly-found head of Hera.

ARCHITECTURE has been poorly represented at the Berlin *Salon* this year. The only Berlin architect of repute represented was Herr Heinrich Seeling, who showed some competition drawings for the proposed Berlin Provincial Museum, to which we have before referred, some drawings of a new theatre he has erected at Plauen, and some photographs of the "New Theatre" at Berlin, to which we have also alluded in a former number. Saxony was represented by Messrs. Schilling & Graebner, of Dresden, who contributed some photographs of a Renaissance church, a town hall, and two villas. Herr Heim, of Berlin, exhibited drawings of two hotels, and Herr Tiede sent an elevation of his design for the Darmstadt Museum. There was strong evidence of the fashion of church building which has shown itself throughout Germany of late, though the various contributions of church architecture were not of very striking merit. Of the usual contingent of competition and other designs for memorial monuments to Emperor William, we only saw, this time, an interesting one by Herr Filler for the Berlin "Schlossplatz," and one by Herr Halmhuber for Coblentz. The Dresden architects alone received an "honourable mention" from the hands of the Managing Committee. If the proposed special Architectural Exhibitions of the "Vereinigung Berliner Architekten" really take place next year, the usual architectural room of the annual *Salon* will, probably, be put at the disposal of another art.

THE death of Mr. Ford Madox Brown removes from among us an artist of rare elevation of mind and singleness of aim, and of talents which were nearly allied to genius. He was one of those artists who care for their work more than for its emoluments, and who spared no pains towards rendering his pictures all that he desired them to be. For many years he had been quietly and unobtrusively labouring at his great work, the decoration of Manchester Town Hall; so unobtrusively, that his existence was almost forgotten by many people who profess to be interested in contemporary art, till they were reminded of him every now and then by the exhibition of a new cartoon for the Manchester series. But while one must look on his career with the greatest respect and on his work with the greatest interest, there seem to have been certain bounds set which he did not pass. His paintings produce the impression of having been contrived, set out, and completed, with the most conscientious care and thought; but one seems always conscious of the effort in their construction. The first work which made a reputation for the artist may be said to have been almost essentially a moral painting; the one entitled "Work," with some labourers at work in a street and portraits of Carlyle and F. D. Maurice looking on. The picture was painted with the great force and conscientious labour of the old "pre-Raphaelite" set, but it must be admitted that it was about as ugly a picture, in a pictorial sense, as one could see. The painter emerged afterwards, like others of his set, from that extreme manner, but it seems to us that the moral element in him always kept rather the upper hand of the pictorial instinct.

NOTWITHSTANDING the great promises that were made in regard to the Photographic Society's exhibition of this year (now open at the gallery of the Society of Water-colours), which was to illustrate the artistic element in photography, and prove that it was something more than a mechanical or chemical craft, we do not see that the present exhibition in any way surpasses its predecessors in this respect, if indeed it is equal to some of them. As to the artistic element, there is nothing in this exhibition equal in this sense to the portrait groups which Mrs. Cameron produced long ago—at least not in the way of figure-subjects. In landscape the Autotype Company exhibit a "carbon enlargement" from a photograph by Mr. P. H. Emerson, "The Wherry" (33), which we take to be a view on the Wensum at Norwich, which is a remarkable example of almost pictorial effect produced by photography; and, considering it as a monochrome picture, we do not know whether a water-colour artist

could do much more with the scene in a monochrome study. The element of figures is only very subordinate, however, in the scene, and the whole effect is to some extent owing to a mistiness of treatment which allows us to escape the hardness of detail characteristic of photography. A couple of very small scenes photographed by Mr. Wadsworth (21, 22), labelled as "cold bath platinum" photographs, have something of the softness and tenderness of pencil studies. Mr. W. A. Cadby has succeeded in making two pretty nearly nude studies of a child, seated draped in transparent lace (12 and 18); and in No. 18 he has induced his young sitter to assume a really pretty attitude for a kind of classic fancy, a girl-child with a mirror. Generally speaking, the introduction of the figure into a photograph scene at once breaks the spell (or what there is of it), and shows us how much we owe to painters. Look at "A Conquest," for instance (97), supposed to be a love idyll in a shady lane, and see how common and ill-posed the figures look compared with what we should find in a similar scene by Mr. Thorne Waite, Mr. Tom Lloyd, Mr. Norman Tayler, Mrs. Allingham, and others we might name. Even the figure studies by Count von Glöden (213-23) seem to prove that half the beauty of the nude figure, after all, rests with the painter; who of course seldom gets, any more than the photographer, the chance to copy the most refined types of natural beauty. The group (218), apparently Italian youths, shows one or two really graceful figures; and of course as studies for artists these figures are useful, but few indeed of them are beautiful. The difference between photography and art is strikingly illustrated again in the photograph of a laughing young woman on a swing (260), under the title "When the heart is young"; a painter could have made this pretty; here it is only vulgar. Our eye was caught by one example which we turned to look at again, as apparently an exceptionally successful sea photograph; it turned out to be not from nature, but from one of Mr. Henry Moore's pictures! Architecture has received a little more attention than usual; Mr. Henry Little sends large photographs of St. Paolo fuori le Mura (328) and the ceiling from the same church (325), and there are one or two other examples, but nothing compared with what such an exhibition ought to show in architecture, the class of subject in which photography is more successful than in any other. The vulgarity of some of the figure group-scenes exhibited is remarkable—more so even than usual.

IN our Foreign Notes last week (France) we had to record the destruction by fire of the church at Quillebœuf, in Eure (Normandy). The church stands close by the lighthouse, on the estuary (left bank) of the Seine, of which the navigation at this part is difficult, and at times dangerous. The church of Notre Dame du Bon-Port has a tower with a pyramidical roof, and nave with seven bays, of the eleventh century. The nave windows were restored about twenty-five years ago. The choir is said to have been built *temp.* Henry IV., on whose behalf Bellegarde defended the town against Villars and Mayenne. Its windows were filled with some fine glass, one representing a procession, in contemporary costume, of the Brotherhood of Charity. But the chief feature of the church was its porch, in the Romanesque style, which ranked amongst the leading architectural beauties of the country. It is thus described in P. Larousse's "Grande Dictionnaire Universel du XIX^e^ Siècle."

Le portail, classé au nombre des monuments historiques, est surtout intéressant. Entre les deux contre-forts qui correspondent aux arcades intérieures de la nef, il est percé de deux fenêtres romanes et d'une porte du même style, ornée d'une cannelure, d'un double rang de zigzags qui se joignent à l'extrémité de leurs angles, et d'un bourrelet au-dessus duquel il s'en trouve un second qui se termine par deux têtes après avoir décrit un demi-cercle. Des losanges ont été sculptés sur la plupart des petites pierres carrées dont le portail est construit.

Quillebœuf, the old capital of Roumois, was given by William Longue-Epée to the neighbouring abbey of Jumièges—a heliographic print of whose ruins will be found in a current work, "La Normandie Monumentale et Pittoresque:" Havre, 1891, fo. Henry IV. employed Dufaie to fortify the town, which he meant to name Henriqueville, and gave a charter to its pilots, who form a corporation like that of the pilots at Dover and Deal. After his death Marie de Medicis ordered the works to be destroyed. Views of the port and its interesting church are given in a folio volume published at Paris, 1835, for Bonnington and his fellow authors of "Excursions in Normandy."

IT is stated that Travers College, Windsor, has been converted into a choir school for St. George's Chapel, and that the choristers will shortly vacate their present quarters near the Horse-shoe Cloisters. The Naval Knights, abolished by a recent Act of Parliament, were established to consist of seven superannuated or disabled Lieutenants of the Royal Navy, under the will, proved in November, 1725, of Samuel Travers, Supervisor (or Surveyor-General) to William III. and Anne. After bequeathing a sum for the erection of an equestrian statue to William III. in St. James's-square, or on the Cheapside conduit, he set aside an estate of 500*l.* per annum for the Lieutenants, who were to be enrolled with the eighteen Poor, since named Military, Knights of Windsor. Owing to various suits in Chancery, letters patent for the foundation were not issued until June, 1798. In 1801-2 the buildings were erected in Datchet-road, at a cost of nearly 9,000*l.* The conditions under which the beneficiaries were required to live together were of a kind unsuitable at this day, but in one case—that of Lieutenant Holman, the blind traveller—the rules were relaxed, and he was allowed to go abroad. The pedestal for the statue was erected in 1732, but the statue itself, by the younger Bacon, was not set up until 1808.

IT seems somewhat probable that the painters' and decorators' trade will follow the example of the plumbers and endeavour to establish special education, registration, and a certifying examination. The "Painters' Company," whilst not financially in a position to contribute funds, is rendering material aid to the thorough discussion of the subject, not only by lending their old Hall for conferences and committee meetings, and as a centre for correspondence, but by appointing members of the court to serve on the committees held in connexion with the subject. The movement has originated in a strong feeling on the part of some of the workmen that there are a large number of almost entirely untrained men engaged, every season, on painters' work. A committee, formed at a recent conference held in the Painters' Hall, has issued to all the principal employers of painters a circular containing the following questions, to which answers are requested:—

"1. Is there a masters' organisation in the town?

2. Is there an organisation amongst the men?

3. Have you any technical or educational institute in connexion with which the scheme could be worked?

4. Failing this, would the employers of the town, in conjunction with the men, organise a class, and try and promote the object we have in view?

5. If you have an organisation, would you kindly ascertain the opinion of the members on the above subjects, and furnish the committee with the result as soon as possible.

6. In the absence of any society would you consult with other employers and leading workmen, to endeavour to arrive at a decision?

Will you kindly reply to the above questions, and indicate on the margin opposite the proposed schemes any suggestions you have to make regarding them."

This circular is sent with the intention of ascertaining how far there is a real demand for either of the proposed objects, since any large scheme of the kind could only succeed if it secured a considerable measure of confidence and support from both masters and men.

OUR illustrations this week include a geometrical detail drawing of the large bay-window of the Colchester Library, a view of which forms one of the smaller illustrations. We cannot but wish that architects of larger buildings would be willing occasionally to follow Mr. Binyon's example, and give us tracings of the constructional detail drawings of important portions of a building. Nothing can be more valuable as illustrations in an architectural journal than drawings of that kind; we would gladly give them often; but of course we are entirely dependent for such drawings on the kindness and goodwill of the architect of the building illustrated.

ARCHITECTS' CHARGES.

WITH the consent of both parties we are enabled to publish the following letters between Mr. Edwin T. Hall, F.R.I.B.A., and the Lord Chief Justice of England:—

57, Moorgate-street, London, E.C.
August 9, 1893.

To the Lord Chief Justice of England.

MY LORD,—

Re Architects' Charges.

I am sure the vast majority of architects desire not only to avoid disputes with their clients, but still more to avoid even the suspicion of making inequitable charges for services rendered.

The general principles enunciated from time to time by your lordship in regard to architectural charges, reaffirmed in the recent judgment in Farthing *v.* Tomkins, naturally place all such architects, of whom I have the honour to be one, in a dilemma. May I venture to ask your patient consideration of the following statement in the hope that you may appreciate the difficulty and delicacy of our position, and may see on what basis charges may in our opinion be fairly made *when there has been no express agreement*, and when the actual building is not erected.

In order to arrive at a clear understanding of our position, I desire first to say that the services which an architect renders may be thus sub-divided:—(*a*) The thinking out of a design, *i.e.*, the application to the problem set by the employer of the architect's creative faculty developed by study, training, and experience. The first expression or result of this design is the preliminary sketch. (*b*) The maturing of the design by most careful study of every detail, not only of artistic expression, but of convenience of arrangement, providing adequate light and aëration for all parts of the building, the scientific construction for stability, the drainage, heating, lighting, &c. This is expressed by the working-drawings, and specification, and, as doubtless your lordship knows, working-drawings not only comprise general plans, sections, and elevations of a building, but drawings to a large scale of many parts, and full-sized drawings of every moulding, of the brickwork and masonry, of all skirtings, architraves, door and wall panels, staircase (newels, balusters, strings), plaster and wooden cornices, &c., &c., while the specification is a mass of detail. (*c*) The necessary explanation of all these to the quantity surveyor, and to the competing builders so as to obtain estimates. (*d*) The general superintendence of the building while in progress, giving directions to clerk of works, builder, and specialists of all kinds, and the certifying of payments. Incidental to all these are constant interviews and correspondence with the client.

I think, where no special arrangement exists, that a charge of 5 per cent. on cost for all these services on other than small or special works, may be assumed to be modest, fair, and reasonable, from the fact that it is accepted by a larger percentage of clients than that of people who adopt a generally accepted view on almost any subject, and your lordship has judicially given effect to this view.

Considering the many thousands of works carried out, I think your lordship will recognise that the disputes on charges which come before the Courts are very few.

If, therefore, 5 per cent. be reasonable for all the services enumerated, it may with fairness be affirmed that the more important of the functions of an architect are embraced under the divisions *a*, *b*, and *c*; for, given the completeness of the work therein comprised, it is evident that the supervision of the execution will require less close application and attention on the part of the architect. Further than that, the actual outlay by the architect in the payment of staff, &c., is almost exclusively confined within the headings *a*, *b*, and *c*. It is not, therefore, illiberal to allocate two-fifths of the remuneration to division *d*, leaving three-fifths for the earlier divisions, and that is a general practice which is

broadly admitted by the great body of clients to be reasonable and fair, as evidenced by the rare occasions on which it is questioned. Indeed, I think in many cases when it is questioned the real reason is that the client who has abandoned a scheme is annoyed that he has, so to speak, to throw away money on services no longer of value to him. I would, with submission, suggest that the translation of the architect's design from the abstract or pictorial building into the concrete or material cannot in equity affect the value of the services rendered previously to reaching the stage of translation; nay, it is possible that an architect's services may be dispensed with previously to that stage, and the building be carried out without his supervision. This is certainly sometimes done when the building has to be executed abroad, a long distance from London, where the work may have been designed. In either case the services for the stages *a*, *b*, and *c* are complete, and if the basis of charge for the whole of the four stages, *a*, *b*, *c*, and *d*, be a percentage, then with equal equity that for the first three stages may be a percentage, or, in other words, may be treated as a fixed proportion of the whole.

There are, of course, exceptional cases where a percentage charge cannot be made with justice to the architect. To cite only one, for example, say an alteration where the outlay may be little, but the ingenuity of the architect may be great to compass the desired end, and the supervision may be relatively excessive.

In this relation it is pertinent to note the recent case of Watson *v.* Lewis, tried before an Official Referee, judgment being given for the full amount of the architect's claim, and on appeal this judgment was upheld. In this case the charges (often for work not carried out) were largely in excess of any that an ordinary charge by percentage would cover.

Discarding exceptional cases, it must be manifestly to the interest of client and architect to know approximately what the total remuneration payable is to be, whether the works are carried out or are designed, but subsequently abandoned for the convenience of the client. If no general scale is adopted, the alternative for the rank and file has been suggested of charging according to time employed. In that case, the man of more ready creative faculty, and possessing more ability, resulting from wide experience, who is able to grasp his subject at once, and get through his work quicker, would be entitled to receive *less* remuneration than the man who is of slower apprehension and less experience, but who, by the patient devotion of more time, may, for the sake of argument, produce the same result. Injustice is done, either in the former case to the architect, or, in the latter, to the client, whereas—the result being the same—a uniform remuneration in either case is, at all events, not unjust to the client.

Again a difficulty would arise as to remuneration if one architect did all the work with his own hands while another had draughtsmen to do the more mechanical work. The late Mr. G. E. Street, R.A., said he made every drawing for a very large building with his own hand. If so, judged by the standard of his position, his time was entitled to a high rate of remuneration, but, as much of the mechanical drawing could perhaps have been done equally well for practical purposes by paid assistants, the client would have suffered had he been charged on the basis of time occupied by the architect priced at its legitimate value, whereas by a percentage charge no injustice would have arisen.

Another question also comes in. Who is to fix the value of the architect's or his assistant's time? It is also possible to conceive that disputes could easily arise as to whether or not an architect had spent an excessive amount of time on any given work. This alone opens up a wide vista of litigation.

A further difficulty arises if time occupied is a basis for charge as to how the architect is to charge for the sometime long period of incubation which goes on in his mind by day and often by night, rendered sleepless by the difficulty of the problem. I am sure it is the experience of almost all architects that on important work this incubation runs through all one's time for days or weeks until at last the design begins to take shape in the brain and is then transmitted to paper. It is practically impossible to say how much time is thus daily *solely* occupied on any given work, for the thread is running through all other work and occupation.

The fact is that payment by time occupied in drawing fails as a basis, because it does not and cannot take into account that which is due to the higher creative faculties of the artist antecedently brought into play. It is for the benefit of these that the architect is employed.

It is sometimes said that the payment by percentage tends to make an architect spend more money than he would do otherwise. I do not believe the allegation to be true of any appreciable percentage of architects—first, because I believe architects as a class are honourable men; and, secondly, because nothing is more inimical to an architect's interest than to get known as an extravagant man. If he satisfies a client he may fairly expect that the client will both commend and recommend him. He then gains a friend, and his *clientèle* is increased. The policy, therefore, of uselessly spending a lot of money to gain a small extra remuneration on one work would be so foolish hat none but the shortest-sighted man would adopt it; and a man possessed of such a defect as shortsightedness would hardly be likely to succeed in his profession of architect, which eminently requires a man to look ahead.

If the result of charging by time be so variable and, as above shown, be unsound in principle, and if the basis of a proportionate charge be discarded, there appears to be no other way open than to bring each individual case to the arbitrament of a learned judge (as in the case cited) or of some other able expert. But it appears to me that such a method of settling the ordinary transactions of life is contrary to the universal principle of barter, is impracticable, and imposes too great a tax to make it a course which your lordship's views of justice and common sense would commend.

I have no authority to speak for or on behalf of the Royal Institute of British Architects, but it may remove a misapprehension if I state that the scale (*i.e.*, the *rate*) of charges was not created by the Royal Institute. Great pains were taken by that body to ascertain what the usual practice was as to charges, and the printed form merely crystallises and codifies the undoubted facts so ascertained. It is not improbable that the percentage system was by general consent adopted because the large body of merchants, brokers, and others who form the bulk of employers were so familiar with that system in their regular business.

I think it may fairly be contended that it was well within the province of the chartered body of architects, not only to ascertain the facts, but to publish the result for the information not only of its members, but of all whom it might concern. The Institute does not impose its scale, even on its own members. The most that it does is to urge the desirability in the interests of employers and architects of following the *usual* scale (where no special agreement is made) so as (*a*) to prevent the pernicious habit of underbidding, which must lead to unscrupulous curtailment of the services properly due to the client, and (*b*) to ensure uniformity of practice; and this is a principle sanctioned by the legislature in the remuneration of solicitors.

It shows but the loyalty of architects to the principle of just and equal treatment of clients that in cases where a basis of payment has not been explicitly agreed, and where an individual may have views legitimately differing in his favour from the recorded general practice, he is willing to waive his own opinion and to base his charges on those in the printed document. This is not always to his interest, for the scale sometimes gives a remuneration equal to that payable to a junior clerk, while on the average, even architects who have good practices only enjoy a modest competence, and the number of them of the widest practice who reap large incomes may almost be counted on the fingers, and is certainly far less than that in either the legal or medical professions.

I trust that in the foregoing I have been able to show that the balance of convenience to client and architect alike is in favour of the practice of proportional charging, and if I have, I trust your lordship may acknowledge that there is both wisdom and equity in the system, whether it be applied to buildings erected or to buildings only designed.

Apologising for the length of this letter, I have the honour to be,—Yours truly,

(Signed) EDWIN T. HALL.

Judges' Lodging, Leeds,
August 11, 1893.

DEAR SIR,—I thank you for your full and elaborate paper on the subject of architects' charges which I have received here this morning. You will not expect me to do more than say that it has received, as it deserves, a very careful and attentive perusal.

I cannot pretend to enter into a full discussion of the subject with you; but I will repeat what I have already said, that I have never doubted the honour and integrity of architects, amongst whom I have the pleasure of numbering some of my oldest and most valued personal friends.

I have the honour to be,
Your Faithful Servant,
(Signed) COLERIDGE.

EDWIN T. HALL, Esq.

REFUSE DESTRUCTOR, WEST DERBY, LANCASHIRE.—The refuse destructor which has been erected in Rathbone-road, Old Swan, for the requirements of the West Derby Local Board district was opened on Tuesday. The site has an area of over 8,000 yards, and is at a height of 200 ft. above the ordnance datum, and is at the highest part of the Local Board's district. The destructor is of the kind known as Fryer's patent, and is provided with Jones's patent fume cremator. It consists of six cells, but provision has been made for the erection of six additional cells when the increase of population renders this course necessary. The flues from the cells are connected with a chimney shaft 160 ft. high, and with an internal diameter of 5 ft. 6 in. The chimney has a square base and octagonal shaft. The whole of the works have been carried out by Messrs. Manlove, Alliott, & Co., Limited, of Nottingham, sole contractors, and in accordance with plans prepared by Mr. Frederick C. Everett, C.E., the Engineer to the board. The destructor cost 6,000*l.*

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The inaugural meeting for the new session of this Society was held at the Cutlers' Hall, Sheffield, on the 5th inst., when Mr. E. M. Gibbs, the President, gave an address. An opportunity was afforded of inspecting the works of the Sheffield Artists' Society, which were on exhibition. The President, in the course of his address, reviewed the work of the Society since its foundation in the Royal Jubilee year 1887. He pointed out that much solid work had been done, and that the objects for which the Society had been established had not been forgotten, and were in a fair way of being realised—to wit (*a*) the advancement of the profession; (*b*) the promotion of means for acquiring a knowledge of the various arts and sciences connected therewith, and the education of the junior members thereof; and (*c*) the consideration of questions of professional practice. They had been the first provincial society to ally themselves to the Royal Institute of British Architects in London, and while having kept their own independence they had secured many solid educational and other advantages from the alliance. Sheffield had been recently constituted the centre of an important north-country district. Their society had co-operated with the Royal Institute in the scheme of examinations, and they had, under the care of Mr. J. R. Wigfull, formed classes for the better education of the rising generation of Sheffield architects. Many lectures had been given on scientific and artistic subjects by the first men of the day. The number of members—over seventy—was greater than originally, and they had a substantial balance at their banker's. They had learned to know each other, and it only remained for them to work heartily together for their common good. On the motion of Mr. J. B. Mitchell-Withers, vice-president, seconded by Mr. F. Fowler, and supported by Mr. Hadfield and Mr. Innocent, a hearty vote of thanks was awarded Mr. Gibbs for his presidential address.

GLASGOW ARCHITECTURAL ASSOCIATION.—The usual monthly meeting of this Association was held in the rooms, 114, West Campbell-street, on the 3rd inst., when a paper was read by Mr. Walter R. Watson on "The Symbolism of Architecture." After explaining the uses of symbolism in the early Christian church, an account was given of its origin and development from the Egyptian down to the Mediæval period, special reference being made to the nimbus and Constantine's monogram, the latter being probably the origin of the Celtic Cross. The application of symbolism to church planning was next noticed, together with the various opinions held as to the spire and roof-vaulting. A discussion followed, and at the close the essayist received a hearty vote of thanks.

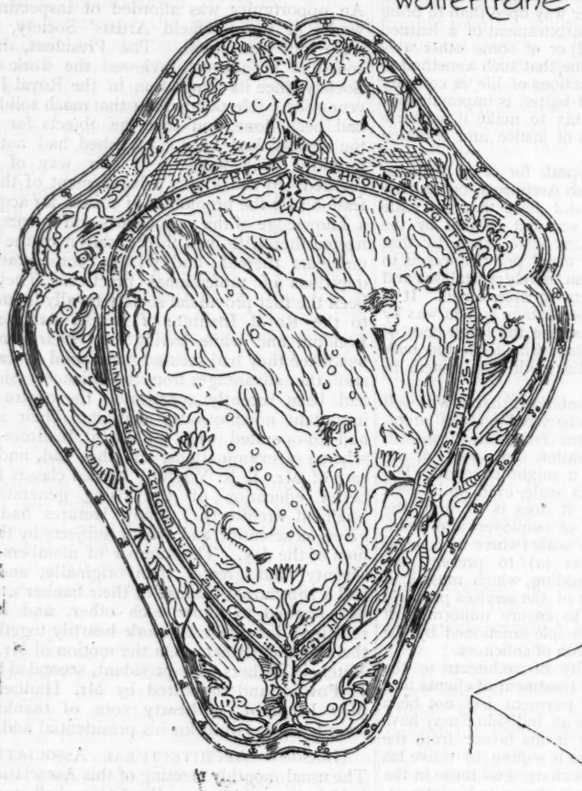
SKETCHES AT THE ARTS AND CRAFTS EXHIBITION.

THE two pages of sketches here given include a good many of the objects which we noted as of special interest in our review of the exhibition last week. Mr. Spooner's writing-table, for which there was not room in the two pages, is illustrated in a separate sketch.

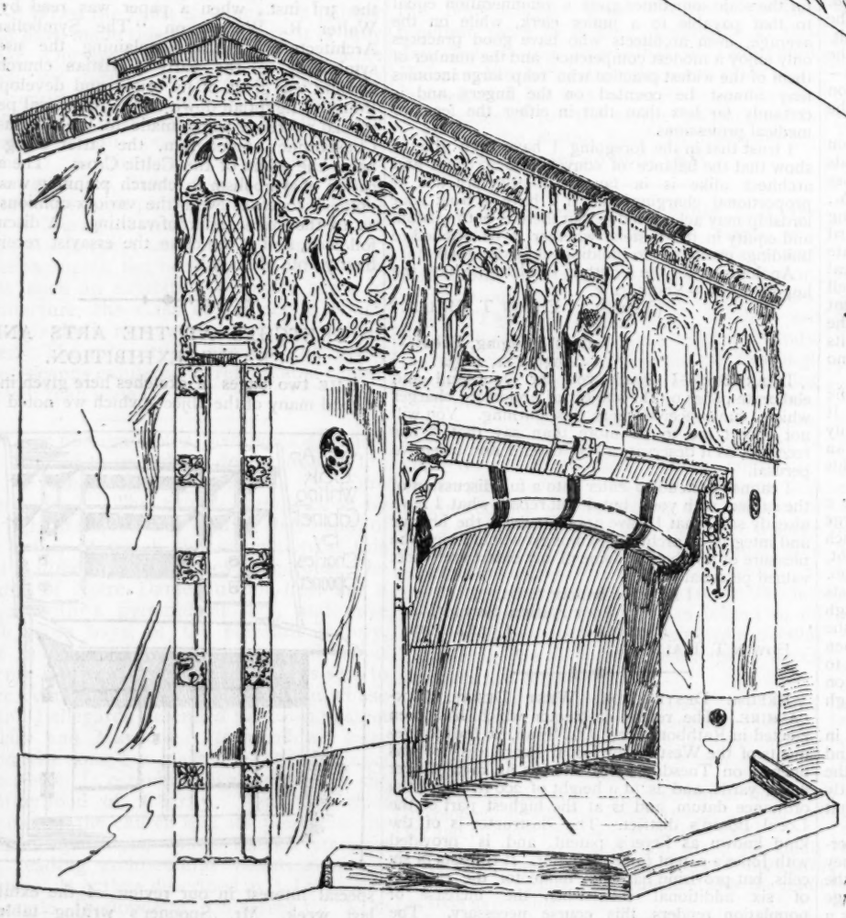
EXTENSION OF MUNICIPAL BUILDINGS, LUTON. Extensions to Luton Municipal Buildings have just been completed under the superintendence of Mr. T. R. Roscoe, the Borough Surveyor.

The Arts and Crafts Exhibition.

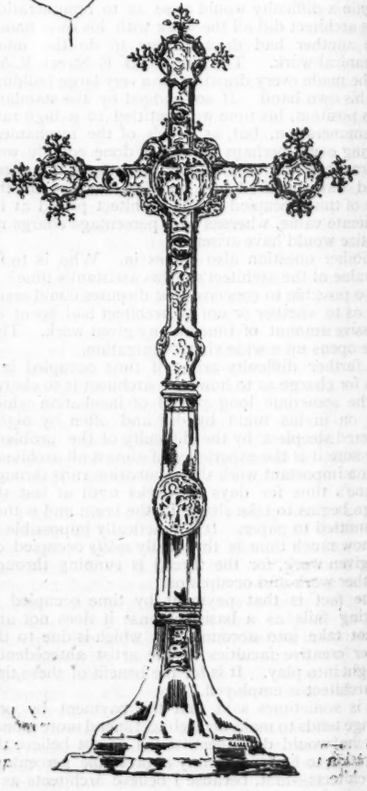
44. Repoussé Copper Shield – by Walter Crane



276. Font for the Private Chapel Welbeck Abbey. by H. Wilson.



Chimney-Piece in carved Alabaster 176 by H. Wilson & F. W. Pomeroy.



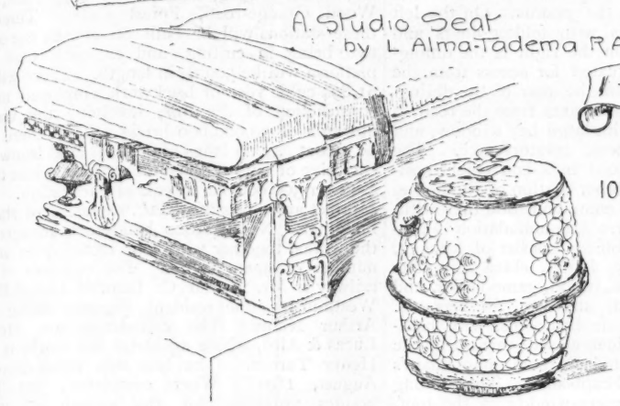
Altar Cross for Welbeck Abbey. by H. Wilson.

Sketches at the Arts and Crafts Exhibition.

The Arts and Crafts Exhibition.

Sketches of Furniture, etc in North & West Rooms.

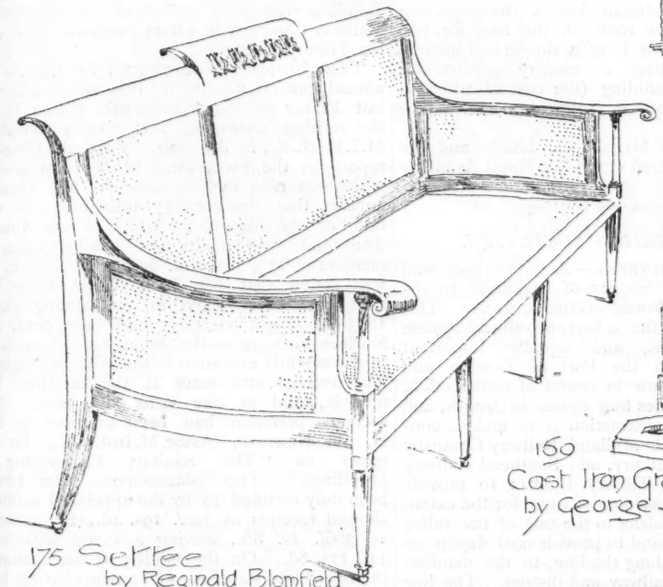
A. Studio Seat
by L. Alma-Tadema R.A.



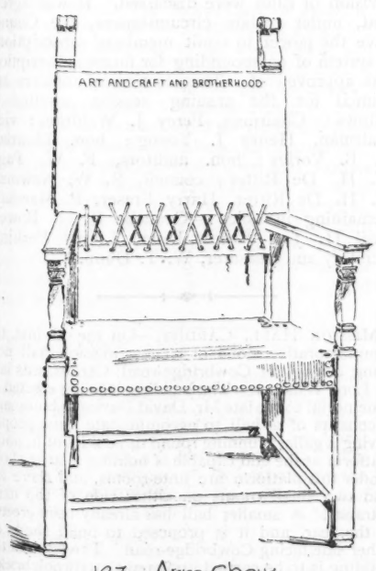
102. Tobacco Pot
by John Gibson.

108. Tea Salver etc
by W.A.S. Benson

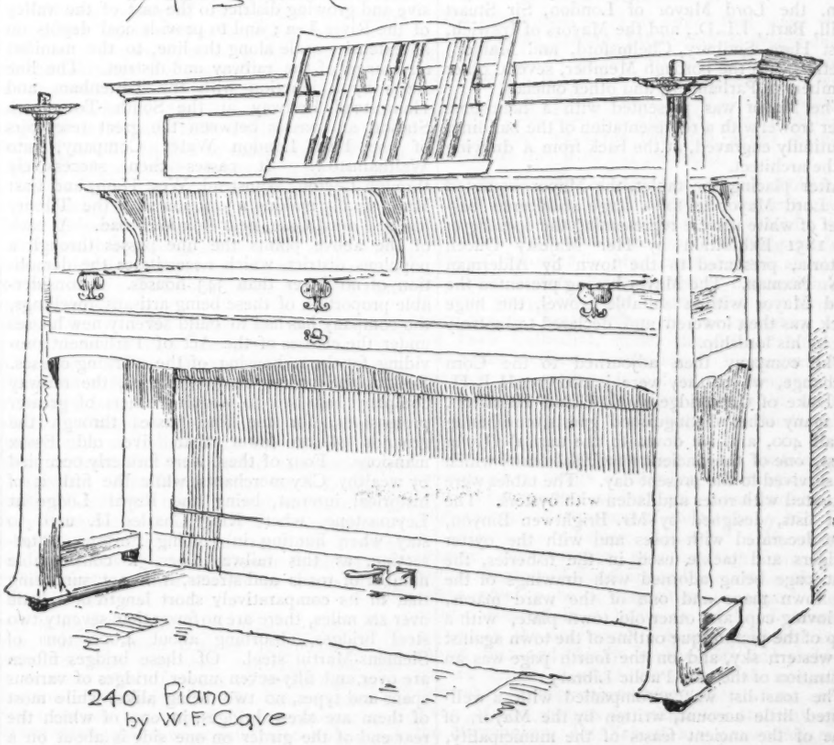
159
Cast Iron Grate
by George Jack



175 Settee
by Reginald Blomfield



183 Arm-Chair
by W.H. Bidlake & A.S. Dixon



240 Piano
by W.F. Cave

Sketches at the Arts and Crafts Exhibition.

NOTE.—The form of Pianoforte-case represented among the above sketches is the copyright of the maker, Mr. C. Bechstein.

Illustrations.

STAIRCASE, IMPERIAL INSTITUTE.

THIS is a view of the principal staircase and entrance-hall. The columns are of Numidian marble, which is also used elsewhere in bands. The pedestals and dado are of Lumachelle, the remainder of the marble work being principally Serancolin. The caps and bases are of bronze. The ceiling is of ornamental plaster, and this, and the wall space generally, are intended for future colour decoration. The staircase was erected by Messrs. Mowlem & Co., from the designs of Mr. T. E. Collcutt, the marble work being executed by Messrs. Burke & Co.

The drawing was hung in the Royal Academy Exhibition of this year.

LUCKNOW CATHEDRAL.

THE new Lucknow diocese was formed last year by taking the north-west district of the diocese of Calcutta, and making it a separate bishopric, that of Calcutta having become unmanageable by reason of its vast area.

The Rev. H. Clifford was duly installed as first bishop last February.

The church was commenced some years ago, but quite lately has been rearranged with a view to its being the cathedral for Lucknow, and seven bays of a large nave, to hold over a thousand persons, have just been added. The complete nave will be nine bays long, the last two with the western façade and towers and spires having still to be erected. The whole, when finished, will form a church of 250 feet long.

It is constructed of solid masonry of cream-coloured sandstone with redstone dressings.

The architect is Mr. W. Emerson, and the drawing was exhibited at the Royal Academy of this year.

COLCHESTER PUBLIC LIBRARY.

THE illustration we give of the Public Library, Colchester, is taken from the drawing recently exhibited at the Royal Academy.

The ground-plan is shown in the corner of the illustration, and we also illustrate a working detail drawing of the main gable showing the oriel window, which, with the barge boards and timber raming, is all to be in wainscot.

Last Friday, the 6th, was the occasion of the ceremony of placing a memorial tablet in the west, or end, wall of the large reading-room by the Mayor of Colchester. The tablet records the names of several munificent donors through whose generosity the building has mainly been inaugurated.

The Mayor was accompanied by the Right Hon. the Lord Mayor of London, Sir Stuart Knill, Bart., LL.D., and the Mayors of Ipswich, West Ham, Sudbury, Chelmsford, and Maldon, together with the borough Member, several other Members of Parliament, and other officials.

The Mayor was presented with a handsome silver trowel with a representation of the building, beautifully engraved, at the back from a drawing by the architect.

After placing the tablet, the Mayor requested the Lord Mayor to fix a large sculptured bas-relief of white marble representing the opening of the 1851 Exhibition by Her Majesty Queen Victoria, presented to the town by Alderman J. N. Paxman. The Mayor having presented the Lord Mayor with a suitable trowel, the huge block was then lowered and declared to be truly laid by his lordship.

The company then adjourned to the Corn Exchange, where they were joined by H.R.H. the Duke of Cambridge, Lord Claud Hamilton, and many other distinguished guests, numbering in all 400, and sat down to the annual Oyster Feast, one of the ancient municipal feasts which has survived to the present day. The tables were decorated with roses and laden with oysters. The toast lists, designed by Mr. Brightwen Binyon, were decorated with roses and with the oyster dredgers and tackle used in the fisheries, the front page being adorned with drawings of the fine town mace and one of the ward maces, the loving-cup, and other old town plate, with a peep of the picturesque outline of the town against the western sky, and on the fourth page was an illustration of the new Public Library.

The toast-list was accompanied with a well-printed little account, written by the Mayor, of some of the ancient feasts of the municipality, and presented to his guests as a memento of the occasion.

The building is being carried out by Mr. Chas. E. Orfeur, of Colchester, from the designs and under the superintendence of the architect, Mr. Brightwen Binyon, of Ipswich. The contract price is 3,109*l.* Besides the general view of the building, Mr. Binyon has also been good enough to furnish us with a tracing of the detail working drawing of the bay window, which forms a separate lithograph illustration.

A DOCTOR'S HOUSE IN THE COUNTRY.

THE plan contains a spacious hall with the staircase starting from the middle. On the left are two drawing-rooms with folding-doors and large bay windows. On the right is the dining-room, conveniently situated for access from the kitchen and butler. In the rear of the dining-room, with a separate entrance from the road, is the consulting-room, with large bay window, and drug store, waiting-room, lavatory, &c. The consulting-room is placed in a convenient position, shut off from the other portion of the house, yet within immediate communication therewith. Ample lavatory and w.c. accommodation is provided. The kitchen offices consist of kitchen, butler's pantry, scullery, larder, china and plate safe; wine-cellar, coals, wood, game-larder, and fruit-store in basement, and w.c. for servants. On the first floor are six bedrooms, with bath-room, lavatory, w.c., linen closet (warmed by the hot-water supply pipes to bath-room), housemaid's closet, and many useful cupboards. The landing is lighted by a large lantern-window in the roof. The principal bedroom has a dressing-room attached. There is room in the roof for two attics. The exterior is of a simple and homely character, suggesting a country gentleman's house, and the building (the cost of which is estimated at 2,300*l.*) is designed to suit a provincial town.

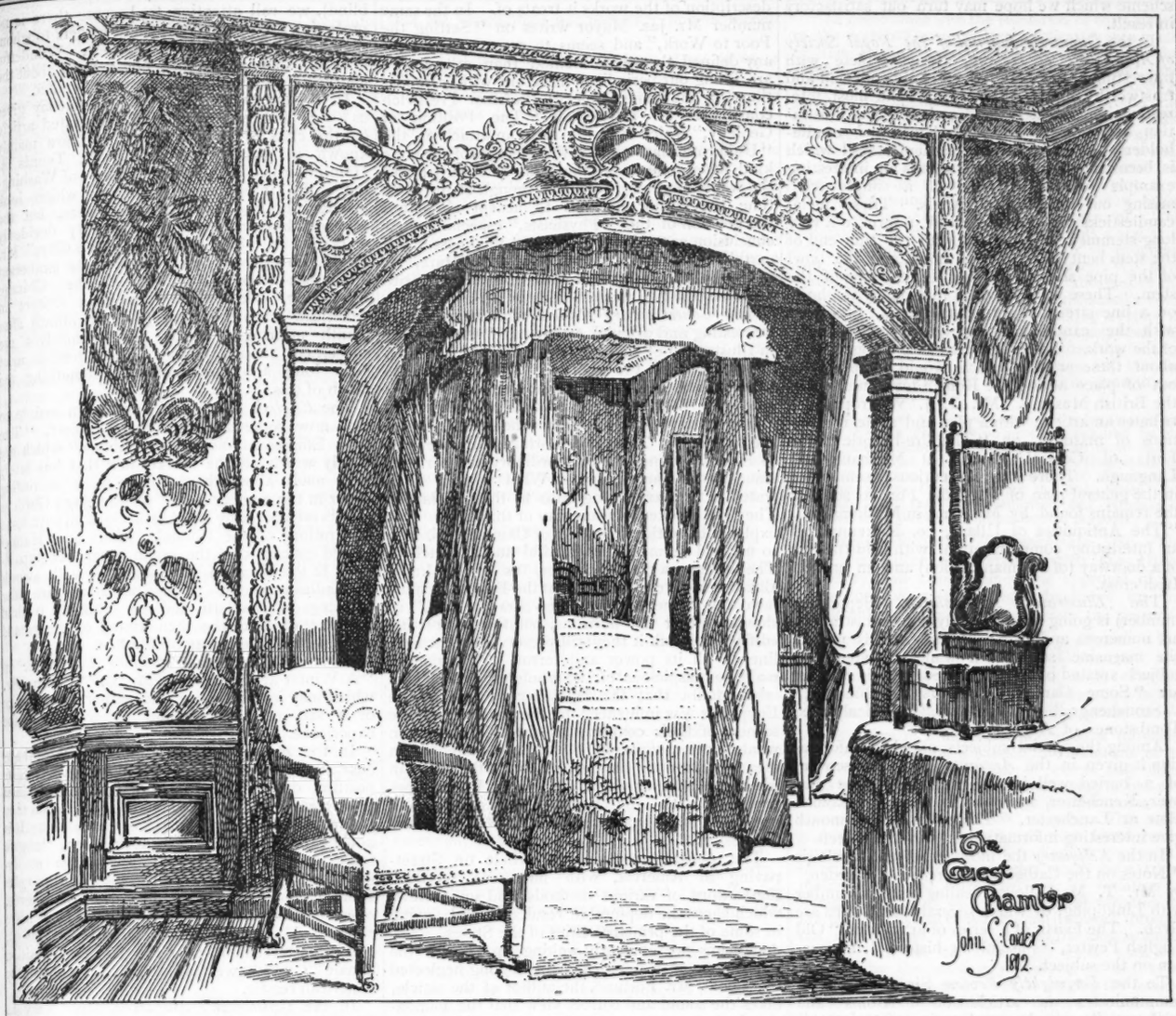
The architect is Mr. E. B. Lamb, and the drawing was exhibited at the last Royal Academy Exhibition.

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—A visit has been paid this week by the Society of Engineers to the Tottenham and Forest Gate Railway. This important link in the suburban railway system of the metropolis, and equally important connexion between the Port of London and the Midlands, is now in course of construction. The line is six miles four chains in length, and the object of its construction is to make a connexion between the Midland Railway Company and the London, Tilbury, and Southend Railway Company, and the Tilbury Docks; to provide additional railway accommodation for the extensive and growing district to the east of the valley of the River Lea; and to provide coal depôts on an extensive scale along the line, to the manifest advantage of the railway and district. The line starts by a junction with the Tottenham and Hampstead Railway at the South Tottenham Station, and passes between the great reservoirs of the East London Water Company, into Walthamstow. It passes then successively through Leyton, Wanstead, West Ham, and East Ham, finally making a junction with the Tilbury line at Forest Gate, near Romford-road. At each of the above points the line passes through a populous district, which necessitates the demolition of no fewer than 343 houses. A considerable proportion of these being artisans' dwellings, the company has had to build seventy new houses under the clauses of the Act of Parliament providing for the re-housing of the working classes. Besides the poorer class of houses, the railway company has had to acquire others of greater pretensions, for the line passes through the grounds of no fewer than five old Essex mansions. Four of these were formerly occupied by wealthy City merchants, while the fifth is of historical interest, being the Royal Lodge at Leytonstone, where King Charles II. used to stay when hunting in Epping Forest. Intersecting, as this railway does, a considerable number of roads and streets, it is not surprising that in its comparatively short length of a little over six miles, there are no fewer than seventy-two steel bridges, absorbing about 4,000 tons of Siemens-Martin steel. Of these bridges fifteen are over and fifty-seven under bridges of various spans and types, no two being alike, while most of them are skew bridges, in one of which the rear end of the girder on one side is about on a line with the forward end of the girder on the other side. The line for about half its length is carried on embankment and in cutting, but three miles of it, or a length equal to that of the Greenwich Railway, consists of a viaduct of brickwork arches each of 30 ft. span. The gradients throughout are easy, and the curves good. Concrete is largely used in the construction of the various works, especially in the retaining walls. Considerable expense has been incurred in the diversion of sewers and watercourses, particularly at Walthamstow. There will be five passenger stations and four goods and coal depôts along the line. The stations will be at Black Horse-road and Shrubland-road, Walthamstow, respectively; Leyton High-road, Leytonstone High-road, and Wood Grange-road, Forest Gate. Three of these stations will be built on arches, the other two being in cutting, and in each case the platform will be 500 ft. in length. There will be 81,894 cubic yds. of brickwork employed in the construction of the line, involving the use of upwards of 30,000,000 bricks. Then there will be about 4,000 tons of steel and ironwork, exclusive of rails and permanent way, while there are over 300,000 cubic yds. of excavation. The contract amount is 264,422*l.*, exclusive of station buildings. Nearly 1,000 hands are engaged on the works, together with four locomotives and a number of steam cranes. The engineer of the railway is Mr. Arthur C. Pain, M.Inst.C.E., of Westminster, the resident engineer being Mr. Arthur Nunn. The contractors are Messrs. Lucas & Aird, whose agent on the works is Mr. Henry Turner. The line was commenced in August, 1891. When completed, the line, besides providing for the growth of outer London, will place the system of the Midland Railway Company in direct communication with the Tilbury Docks.

THE JUNIOR ENGINEERING SOCIETY.—The annual general meeting of this society was held last Friday at the Westminster Palace Hotel, the retiring chairman, Mr. Sidney Boulding, M.I.Mech.E., in the chair. From the Council's report on the proceedings of the past session, which was read by the secretary, Mr. Dunn, it appears that the society continues to be well fulfilling the objects for which it was formed. The total membership now numbers 330, an increase of 13·4 per cent. during the session. It was stated that Mr. John Wolfe Barry had accepted the presidency for the ensuing session 1893-94. Eight meetings had been held, and fourteen visits to works, &c., arranged, exclusive of the summer excursion to the West of England. The average attendance at the meetings was fifty-six, and at the visits sixty-five. The society's premium had been awarded to Mr. R. W. Newman, Assoc.M.Inst.C.E., for his paper on "The Sanitary Engineering of Dwellings." The balance-sheet, after having been duly certified to by the appointed auditors, showed receipts as 320*l.* 19s. 4d., and expenses as 306*l.* 1s. 8d., leaving a credit balance of 14*l.* 17s. 8d. On the motion of the chairman, the report and statement of accounts having been adopted, and a vote of thanks passed to the retiring officers, various motions in reference to revision of rules were discussed. It was agreed that, under certain circumstances, the Council have the power to remit members' subscriptions. A system of compounding for future subscriptions was approved of. The election of officers and council for the ensuing session resulted as follows:—Chairman, Percy J. Waldram; vice-chairman, Henry J. Young; hon. librarian, H. B. Vorley; hon. auditors, F. W. Page, W. H. De Ritter; council, R. W. Newman, W. H. De Ritter, Harry Fraser, P. Marshall. Remaining in office:—Council, P. G. Bowen, Basil H. Joy, Ernest King, Loftus Perkins; secretary and treasurer, W. T. Dunn.

MISSION HALL, CARDIFF.—On the 6th inst. the commemorative stone of a new mission hall now being erected in Cowbridge-road, Cardiff, was laid by Lord Windsor. The building is being erected as a memorial to the late Mr. David Davies, Llandinam. It consists of a hall to accommodate 1,100 people, having a gallery running round three sides of it, and a platform at the end capable of holding a large choir. Under this platform are ante-rooms, and there are also two small rooms on either side of the main entrance. A smaller hall has already been erected at the rear, and it is proposed to build shops on either side facing Cowbridge-road. The front of the building is to be carried up in red Cattybrook bricks, with Bath stone dressings. The contract price is 2,575*l.*, and has been let to Mr. C. C. Dunn, of Cardiff, who is carrying out the work from the designs of Messrs. Habershon & Fawckner, architects, of Cardiff.



From Illustrations of Christchurch or Withepole House, Ipswich.—By Mr. J. S. Corder.

THE GUEST CHAMBER, CHRIST CHURCH, IPSWICH.

THIS illustration is reproduced, by permission, from Mr. John S. Corder's monograph* on the very picturesque old house known as Christchurch or Withepole House, near Ipswich. The place derives its name from a Priory of Austin Canons founded in 1177, in the church of the Holy Trinity, just outside the North Gate of Ipswich. The house seems, from the illustrations appended to the historic account, to be a charming old place. Mr. Corder, who has done a good deal to illustrate the antiquities of his neighbourhood, and whose occasional "Wayside Notes in East Anglia" will be remembered as occurring from time to time as among our lithograph illustrations, gives a measured plan, several views, and various details, on folio plates. The house is on what may be called the E plan, but not symmetrical, one arm of the E being a good deal wider than the other. The porch forms, as usual, the central projection facing the courtyard. The volume is an interesting collection of illustrations and historical information.

MAGAZINES AND REVIEWS.†

The Gazette des Beaux-Arts contains a long and well-illustrated article on the collection of arms in the Musée d'Artillerie, which the writer, M. Maurice Maindron, maintains to be the finest collection of the kind in the world. M. Paul Mantz furnishes the second of two articles on the life and works of Largillière, with a reproduction of his remarkably fine and dignified portrait of Mdlle. de Barral. M. Marcel Reymond continues the subject of Florentine sculpture in the fourteenth and fifteenth centuries, taking the expression "Florentine" apparently as including Italian work of the period generally, as this article deals mainly with the sculpture of Siena and Orvieto, and with the characteristics of the Sienese school of sculptors, whom he describes as remarkable for energy of style with little feeling for the best effects of relief. In this he considers the French cathedral sculpture of the same period far surpasses the Italian work. M. de Champeaux continues his interesting and valuable series of articles on "L'Art Décoratif dans le Vieux Paris," dealing in this month's number with some of the Renaissance hôtels and palaces which either have been or will be pulled down in the course of Paris improvements.

The *Art Journal* gives its readers good reproductions of two admirable pictures, Mr. Orchardson's "First Dance" and Mr. Crofts's "Gunpowder Plot; the Last Stand." Among the articles is one on the work of the Italian sculptor, Rinaldo Carnielo, whose robust physiognomy, as indicated in the portrait, is in strange contrast with the morbid sentimentalism of his works. Mr. Day's article on "Design in Furniture" is hardly broad enough for its title, as it is really concerned mainly with the question of the best style of French furniture to be taken as types, if we must go after French furniture, but the following sentence should be worth noting by those concerned :—

"It is perhaps because manufacturers do not, as a rule, exercise much taste or judgment in the selection of what they shall reproduce, that one finds whatever style it happens to be the fashion to resuscitate so inadequate. The less remote its period from our own day the more nearly it may meet our wants; but it never quite meets them; and to reproduce, in these days, say, a Chippendale settee in the likeness of three chairs 'all in a row,' is to forget the advance we have made of late in the direction of ease and material comfort."

We might add, it is to forget that what we want, to make furniture interesting, is design and not copying. In the fifth article, on "The Tate Collection," by Mr. Walter Armstrong, we entirely concur in the eulogistic and discriminating critique on Mr. Stanhope Forbes's "Health of the Bride," which we agree with the writer is the best picture this artist has produced.

To the *Magazine of Art*, Mr. Claude Phillips contributes a good critical article on the sculpture of the year, though we cannot agree with him in the rather low estimate he forms of Falguière's "Poésie Héroique." Mr. Garnet Smith's article on "Jules Breton," with numerous illustrations, is both sympathetic and sound as a criticism. Miss Sophia Beale writes on the sculpture of the Paris Cathedral, under the title, "Nôtre Dame and Mediæval Symbolism." It is a curious omission that nothing is said of the remarkable crowning figures of the towers, perhaps the most striking things, in their way, in Mediæval sculpture.

The *Studio* is an admirable issue, containing among other things a number of illustrations (from photographs) of modern room-furnishing produced as illustrations of an article by Mr. J. S. Gibson on "Artistic Houses." We may observe, however that, as a reaction from the former neglect of furniture and decoration, there seems now to be a disposition to regard the artistic element in a house as exhibited almost entirely in the accessories. Surely it should be shown first, and chiefly, in the plan and architectural design, of which the plan is an integral element. Among other things, illustrations are given of the designs by which the students of the Birmingham Art School are proceeding to decorate the interior of the Town Hall with scenes from Birmingham history; a spirited

* Ipswich: S. H. Cowell.

† The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon

scheme which we hope may turn out satisfactory in result.

In the *Quarterly Journal of the Royal Society of Antiquaries of Ireland*, always replete with interesting and apparently carefully collected and trustworthy information, one of the most interesting items to us is the description and illustration of some of the old "weavers' candleholders," a curious form of ancient utensil which is becoming very rare, and affords an interesting example of artistic form of a simple kind arising out of practical needs. These metal candlesticks may be compared in form to a very long-stemmed tobacco-pipe with the thin end of the stem bent round into a hook, and the bowl of the pipe sharply returned on the line of the stem. These were intended to hang by the hook on a line stretched across the loom, the bowl with the candle hanging down just in front of the work. There is a curiously antique style about these articles, which would hardly look out of place among the Roman metal utensils in the British Museum. Mr. T. J. Westropp contributes an article, with a plan and some illustrations of masonry, on "The Pre-historic Stone Forts of Central Clare" at Moghane and Langough. There is a very curious resemblance in the general plan of Moghane Fort to some of the remains found by Mr. Bent in Mashonaland. "The Antiquities of Ullard, co. Kilkenny," is an interesting communication, with illustrations of a doorway (of Norman fashion) and an ancient Irish cross.

The *Illustrated Archæologist* (September number) is going on admirably; the illustrations are numerous and excellent, and in this respect the magazine supplies a want. Among the subjects treated of and illustrated in this number are "Some Carved Doorposts in Brussells," "Stonehenge," "Silchester," "Sculptured Tombstones of Argyllshire," &c.

Among the special subjects on which information is given in the *Antiquary* are the discovery of a buried well in the grounds of the new weir, Kenchester, and the discovery of a Roman altar at Lanchester. The notes of the month give interesting information on various subjects.

In the *Reliquary* the most important article is "Notes on the Cathedral Churches of Sweden," by Mr. T. M. Fallow; dealing in this number with Linköping, of which several illustrations are given. The fourth of a series of articles on "Old English Pewter," is useful for historical information on the subject.

To the *Fortnightly Review* Sir Robert Ball communicates an article on "Atoms and Sunbeams," a popular explanation of the atomic theory of matter and of the reasoning by which the knowledge of the existence, action, and speed of atoms is arrived at; we say "knowledge," for the reasoning seems unanswerable, yet it is difficult to speak of "knowledge" of mechanical facts which we cannot verify either by sight, hearing, or touch. The main point in the article is the author's reasoning in regard to the radiation of heat from the sun, which he does not appear to consider as constantly and steadily diminishing, as we have been accustomed recently to be told by astronomers. The subject is one on which only an exhaustive study of phenomena can justify anyone in expressing a positive opinion at all; and Sir Robert Ball is not too dogmatic; but his paper will be found very interesting by those readers who have the patience and the mental power to follow out and realise his argument. The same number of the *Fortnightly* contains an article on "The Unemployed" by Mr. Arnold White, which does not seem to lead to any certain conclusions, and an extract from the last diary kept by the late J. A. Symonds, "Notes of a Journey in South Italy," which had been intended as the material for an article. Some of the notes deal with architectural details in rather out-of-the-way places, and may be of interest in this respect to architects visiting the part of Italy referred to.

In the *Nineteenth Century* we have an article by the Hon. Reginald Lister on "The Archaic Statues of the Heropolis Museum," the collection of female figures with the same attitude and nearly the same expression, which present a curious problem to the modern sculptor. Mr. Lister supports the view that these mechanically smiling statues were meant to have some psychological expression, in opposition to the idea of the other school of critics, that the expression is only read into them by ourselves, and that the sculptor was mainly occupied with the yet only partially-mastered technical difficulties of the craft. The latter view seems to us the more probable, but in any case the article is a useful record and description of the works it treats of. In the same number Mr. Jas. Mayor writes on "Setting the Poor to Work," and seems to come no nearer to any defined theory or method than others who are filling our periodical literature with disquisitions on the same subject; Professor Prestwich contributes an article on "The Position of Geology," which is in the main an attack on the "Uniformitarian" theory, that changes of the same kind have gone on at the same rate throughout the whole of geological time: though at the same time the author declines to accept altogether the position of the "Physicists," especially their conclusion as to the present great thickness of the earth's crust. The problem of the future, he suggests, is to adjust and harmonise the opposite results of the two classes of theorists.

The *Contemporary Review* contains a rather interesting and original article on "Chinese Art in Illustration of Chinese Character," by the Rev. W. A. Cornaby, the keynote of which is that the Chinese abhor a straight line, on superstitious grounds. Demons move in straight lines. "In a true horizon line are seen 'the undulations of the dragon.'" Therefore, a straight line belongs to Hades. Hence the extraordinary and perverse sinuosity of their paths. What is thus illustrated in their art belongs also to their character. They are crooked in their way of thinking. This explanation of the sinuosities of Chinese art is new to us, and seems rather fanciful and far-fetched. The author writes, however, as if he knew China well. He concludes that the Egyptians must have felt "the terror of the straight line," as shown in their flat horizons, but that in erecting edifices to break it they still preserved the straight line in all its power and terror. This remark makes us suspicious of the whole article. There is no doubt that the level architecture of the Egyptians was influenced by the character of the scenery of their country, but there is no reason whatever for supposing that they attached an idea of terror to the level line, in the sense in which he tells us the Chinese do. It was more probably with the Egyptians a question of grandeur and permanency of architectural expression.

The *Century* contains an article on Street-paving in America, with numerous sectional illustrations of various methods, and some views which show the deplorable results of bad paving in some of the principal cities of the States. The Americans are evidently waking up now to the importance of a practical subject long neglected by them. Mr. Fortune, the author of the article, takes the sound and correct view that the foundation is the most essential element in a pavement. To English readers the most interesting portion of the article is that on brick pavements, the extensive use of which for streets is almost an American invention. The writer takes a very favourable view of brick pavement, but admits that the test of time is still wanting to give us satisfactory evidence of its durability. The same number contains an article by Mrs. Van Rensselaer on "Frederick Law Olmsted," the landscape gardener who laid out Central Park at New York, and the grounds of the Chicago Exhibition; one on Madame Ronner, the painter of cats, with some good illustrations from her works; a poem by R. W. Gilder on "The Vanishing City," in which the glories of the Chicago Exhibition are celebrated in the most hyperbolical ecstasy of praise; and a long account by Mr. T. R. Campbell of the Pratt Institute at Brooklyn, a school of technical training in art and industry which seems to be on an exceptional scale. A very beautiful illustration, "Light in Shade," gives an example of the work of Mr. I. H. Caliga, an American-born artist who received his art training at Munich. As a whole the number is an exceptionally good one.

Harper contains an article by Mrs. Pennell on "A French Town in Summer" (Toulouse to wit), with a number of charming accompanying sketches by her husband. "From the Black Sea to the Persian Gulf by Caravan," by Mr. Edwin Lord Weeks, with a number of admirable sketches, affords us a glimpse into a part of the world little known to most English readers. "The Childhood of Jesus," by Mr. Henry Van Dyke, seems to be "written up" to certain engravings from Italian masters. "Lispenard's Meadows," by Mr. Thomas A. Janvier, describes one of the old suburbs of New York, with some interesting sketches and a reproduction of a plan of New York in 1767. An article giving an American view of "Undergraduate Life at Oxford," by Mr. R. H. Davis, though it is little concerned with the artistic beauty of Oxford (to which, however, the writer is obviously not blind), we call attention to because there is no profession that will not include readers to whom such a subject would be of interest. Wonderful to relate, there is for once not a word about the Chicago Exhibition throughout the number.

In *Scribner's Magazine* Mr. Doubleday gives us a very interesting and fully-illustrated article on the class of French artists who are mainly known as book illustrators. Mr. Tennis S. Hamlin writes on "Historic Houses of Washington," the interiors of some of which look wonderfully like old London houses, but the exteriors have a local character very decidedly marked. In "The Art of the White City," Mr. W. H. Low gives us another of those exuberant jubilations over the effects of the Chicago Exhibition, with which American writers in American magazines have gone on month after month untiringly, as far as themselves are concerned, though many of their readers must have long ago commented, "Something too much of this."

The *English Illustrated* devotes an article to that now somewhat threadbare subject, "The Wax Effigies in Westminster Abbey," which are hardly worth all the literary fuss that has lately been made about them. The most interesting paper in the number is one on Ranelagh Gardens and its memories, by Mr. Austin Dobson, with some illustrations of the Rotunda, where once Handel played concertos on the organ as an accompaniment to the flirtations of beaux girt with swords and ladies in hoops. The illustrations are after paintings by Canaletti, and are probably truthful representations of the then aspect of the ground which is now the centre of Pimlico.

Longman's Magazine includes an article on "A Winter at Davos," by Mr. C. W. Kennedy, which may interest those who, either from choice or a sad necessity, intend to try the same experience.

In the *Revue Générale* Captain E. Monthaye concludes a series of articles "A Travers l'Exposition de Chicago," which is naturally in a more sober and restrained style of criticism than we are used to in the American magazines. It is not, he observes, the Paris Exhibition, "si gaie toute en étant hautement suggestive et intéressante: la World's Fair, plus étendue, plus énorme, plus colossale, mais moins achevée, moins artistique, moins séduisante, est autre chose." However, Captain Monthaye sums up, "Incontestablement, ce n'est pas une exposition banale"; which we fear will hardly content the American reader.

In the *Gentleman's Magazine*, Miss Mary L. Sinclair has got together a good deal of historical information about the "Parish Church of the House of Commons," namely, St. Margaret's, Westminster. An article on "Life in Modern Egypt," by Mr. C. B. Roylance Kent, though mainly political, is not without interest in a picturesque sense. Science is represented by an article on "The 'Demon' Star" (Algol), by Mr. J. Ellard Gore, and one on "Some Curiosities of Geology," by Mr. G. W. Bulman.

The *Cornhill* gives some notes on "Camp Life in Cashmere," which are picturesquely written.

The *Pall Mall Magazine* is, as usual, an exceptionally good specimen of book-illustrating, which suggests rather a feeling of regret that such admirable illustrations should be thrown away on literary matter that is for the most part so tawdry and second-rate in style.

The *Strand* (September) devotes its "illustrated interview" to Mr. Hamo Thornycroft, his house, and his principal works, of which many illustrations are given.

Among the lighter magazines, *Belgravia* includes "A Consular Tour in Gallicia," giving some information as to the country.

THE LONDON COUNTY COUNCIL.

At the usual weekly meeting of the London County Council, held on Tuesday at the County Hall, Spring Gardens, Mr. Charles Harrison, Vice-Chairman, presided in the absence of Mr. Hutton, owing to a domestic bereavement.

The County Rate.—On the recommendation of the Finance Committee, the necessary resolutions were passed for the making of a county rate of 6½d. in the pound, being 5·35d. in the pound for general county purposes, and 1·15d. in the pound for special county purposes. The total amount estimated to be required for the half-year to March 31 next was 891,562*l.*, and the rate yielded 890,749*l.*

The Shaftesbury Memorial Fountain.—The Improvements Committee brought up a long report

with regard to the Shaftesbury memorial fountain in Piccadilly Circus. The report was as follows:—

"We desire to call attention to the Shaftesbury memorial fountain, at Piccadilly-circus, which was unveiled and handed over to the Council on June 29 last. A few days after the unveiling ceremony we received a letter from Mr. Alfred Gilbert, the designer of the memorial, stating that 'he had had the painful experience of witnessing the utter failure of his intentions and design,' in consequence of the dwarfing of his design by the high wall surrounding the memorial, and of the inadequacy of the water supply. To remedy this Mr. Gilbert suggested (1) that the height of the enclosing wall should be considerably reduced, (2) that a 6-in. water main should be substituted for the two present 1¼-in. mains, and (3) that the space within the enclosing wall at present occupied by the stone steps should be used as an additional basin for the fountain, the four openings in the surrounding wall being stopped up in such a manner as to provide for a drinking place at each of the four points. To these suggestions we have given much consideration. We feel that some alterations must be made to the fountain before it can be pronounced satisfactory, and we believe the Council will see the necessity of authorising this additional work. It will perhaps be well if we deal with the suggestions made by Mr. Gilbert *seriatim*. With regard to the enclosing wall Mr. Gilbert contends, and we think justly, that it obstructs the view of the base of the memorial, and therefore gives the work a dwarfed appearance. Originally the wall was erected in compliance with the terms of the Metropolitan Improvements Act, 1889, but we are informed that the requirements of the Act would be met if the wall were lower than at present. We have no doubt that if the height of the wall were reduced to somewhat less than a foot above the pavement level the appearance of the fountain would be considerably enhanced. As this alteration will not involve an expenditure of more than about 25*l.*, we have decided to advise the Council to sanction it. We recommend—

'(*a*) That the height of the wall surrounding the Shaftesbury memorial fountain be reduced as far as the plinth, and that the work be done by the Works Department.'

With regard to the supply of water, it is contended that the effect of the fountain is lost by the insufficiency of the supply. At the same time complaints have been made that some of the jets cause the water to spurt beyond the fountain and on to the public way. Mr. Gilbert states that these difficulties can be overcome by the substitution of a larger water main, as the increased pressure obtained thereby will not only add to the effect of the fountain, but will force the water into the basins instead of on the public way. With this we are inclined to agree, but the effect can only be definitely ascertained by experiment. We have found that the pressure in the mains of the Grand Junction Water Company varies considerably, and that a large main would therefore be of little use. A sufficient and uniform supply, however, can be obtained by using as a motive power the water of the Hydraulic Power Company, that company having a main in the subway adjacent to the fountain. By employing an injector the water could be forced through the jets at any uniform pressure, and the bulk of the water could be used over and over again. The water so supplied, though perfectly suitable for ornamental purposes, could hardly be used for drinking, and for that a separate supply would have to be provided. It is impossible, however, to form an adequate idea of the result of a good and uniform pressure without experiments, and we have therefore decided to ask the Council to sanction an expenditure for this purpose. The estimated cost of the actual work necessary for the experiments, or for providing a permanent supply of water with an injector, is 62*l.*, and we think the Council would do well to authorise us to expend a sum not exceeding say 75*l.* We recommend—

'(*b*) That, subject to an estimate being submitted to the Council by the Finance Committee as required by the statute, an expenditure of a sum not exceeding 75*l.* be authorised for experiments in connexion with the supply of water for the Shaftesbury memorial fountain.'

The third suggestion made by Mr. Gilbert is that the four openings in the inclosing wall of the fountain should be stopped up, a pretty feature of the fountain being produced by the water being allowed to fall down the steps, thus the space within the enclosing wall would be used as a lower basin. Mr. Gilbert has offered to design free of cost the four drinking-places at the outer wall. We think the suggested alteration a good one, and accordingly recommend—

'(*c*) That the space within the inclosing wall of the Shaftesbury memorial fountain be used as an additional basin, the four openings in the surrounding wall being stopped up in such a manner as to provide for a drinking place at each of the four points.'

There is one more point connected with the fountain to which we desire to call attention. The Council on May 3, 1892, authorised us to provide for the connexion of the necessary water pipes with the fountain, the formation of the foundations, and the building of the enclosing wall. We then stated that the estimated cost of the works was 1,010*l.*, but we now find that that amount has been exceeded by 45*l.* 6s. 8d. We have satisfied ourselves that the expenditure was necessary, and we recommend—

'(*d*) That the additional expenditure of 45*l.* 6s. 8d. be sanctioned.'"

Mr. Moss moved as an amendment to refer the report back to the committee for further consideration.

Alderman Debenham seconded, and said he thought the Council should know who was responsible for the erection of the high wall which had dwarfed the memorial.

Mr. Beresford Hope said the fountain was out of place in its present position, and that a great many people were of opinion that it would be a fortunate thing for London if the fogs and the weather were to quickly act upon the structure.

Alderman Beachcroft said it was a pity they were not consulted as to the nature of the monument before they voted the finest site in London for it. Could not the fountain be removed to a more suitable spot, say one of the public parks, so that the present site might be devoted to something more worthy of the great man in whose memory it was erected?

Other speakers having contributed to the discussion, a division was taken, with the result that the amendment was lost, 46 voting for it and 54 against.

Recommendation *a* was then agreed to.

On recommendation *b*,

Mr. John Burns, M.P., proposed an addition to the effect that the supply of water be confined to pure water only. If hydraulic water were used for display purposes, there would be the chance that children might drink it and poison themselves.

After further discussion the recommendation, with the addition suggested by Mr. Burns, was agreed to.

Recommendation *c* having been rejected,

Mr. Ward moved as an addition to the last recommendation that it be an instruction to the Committee to bring up an annual estimate of the cost of working the fountain.

The motion was agreed to, and the report, as amended, was adopted.

Tenders for the Isle of Dogs Bridge:—The same committee's report contained the following paragraph and recommendations, which, after some discussion, were agreed to:—

"We have considered the following tenders, referred to us on October 3, for the reconstruction of four swing bridges and approaches at the Isle of Dogs—

	£	s.	d.
The Thames Ironworks and Ship Building Company, Limited ...	55,021	11	2
Mr. A. Thorne	57,943	18	10
The Phœnix Iron Company.....	57,963	9	5
Sir W. Arrol & Company	58,148	9	10
Messrs. Woodhouse & Rawson	61,381	1	0
Messrs. A. Handyside	63,863	3	10

The tender of the Thames Iron Works and Ship Building Company was accompanied by a letter in which the Company stated that in the event of their tender being favourable they would require to come to a clearer understanding with reference to certain clauses in the contract. The letter from the Company is not very definite, but we have not asked for further information, as with one slight exception we are not prepared to advise the Council to make any alteration in the contract. The exception to which we refer is that in the arbitration clause words might be added to the effect that in the event of Mr. Binnie ceasing to act as Engineer of the Council, an arbitrator should be appointed by the President of the Institution of Civil Engineers. This arrangement was made in the case of the Barking-road Bridge, and we see no objection to it. We are prepared to recommend the acceptance of the tender of the Thames Iron Works Co., subject only to the foregoing alteration of the contract. We recommend—

'(*a*) That in the arbitration clause in the contract words be added to the effect that in the event of Mr. Binnie ceasing to act as Engineer of the Council an arbitrator shall be appointed by the President of the Institution of Civil Engineers.

(*b*) That, subject to such alteration of the contract, and subject to an estimate being submitted to the Council by the Finance Committee as required by the statute, the lowest tender, that of the Thames Iron Works and Ship Building Company, Limited, amounting to 55,021*l.* 11s. 2d., be accepted, and that the solicitor do prepare the contract.'"

The Boundary-street Scheme.—The Public Health and Housing Committee reported that the Secretary of State had approved the plan for the reconstruction of the Boundary-street area, and had sanctioned the reduction in the number of persons to be rehoused from 5,100 to 4,700. Permission was also given to the Council itself to erect the dwellings for the working classes on section A of the area.

Hughes-fields, Deptford, Improvement Scheme.—The same committee also reported as follows, the recommendation being agreed to:—

"In accordance with the resolution of the Council of the 20th of December last, application was made to the Home Secretary for permission for the Council itself to erect dwellings on the vacant plots on the Hughes-fields site. The Home Secretary granted the application, and we now submit the drawings and specification for the foundations of the buildings proposed to be erected on plots 2 and 3. The buildings will be cottage dwellings two stories in height, to accommodate 192 persons, and are similar in design to those to be erected on plots 6, 7, and 8, the foundations for which are now being proceeded with by the Works department. The estimated cost of the foundations (plots 2 and 3) is 850*l.* The plans for the buildings are in progress, and will be submitted in due course. We have carefully considered the estimate of the cost of the buildings, and are satisfied that the Council's resolution of the 21st March last, requiring a return of 3 per cent. on the Council's building operations will be complied with. It is desirable that the foundations should be put in hand at once, and that the work should be executed by the Works department. We recommend—

'That, subject to an estimate being submitted to the Council by the Finance Committee as required by the statute, the foundations of the dwellings to be erected on plots 2 and 3 in connexion with the Hughes-fields, Deptford, scheme, and the preparation of the plots, be executed by the Council without the intervention of a contractor, and that the specification and estimate be referred to the Works Committee for that purpose.'"

Cottage Dwellings, Goldsmith-row Site.—The same committee also reported that the Home Secretary had also signified his approval of the plans for two-story cottage dwellings on the Goldsmith-row site to accommodate 144 persons.

Extras, Parker-street Lodging House.—The Public Health and Housing Committee also reported as follows with regard to the Parker-street Lodging House, their recommendation, after considerable discussion, being agreed to:—

"We have had under consideration a statement from Messrs. Gibson & Russell, the architects of the Parker-street lodging-house, of extras and omissions on the building contract, showing a net sum of 1,053*l.* 13s. 2d. due to the builders over and above the contract price, viz., 14,300*l.* This result is due partly to additions which were found necessary as the work progressed, and which were mostly unavoidable, but the two items which have added materially to the extra cost are (1) variation of foundations, 276*l.* 2s. 10d.; and (2) variation on fire-proof floors and constructional ironwork throughout, 203*l.* 14s. 3d. The extra on the foundations is explained by the fact that much extra work was entailed by the necessary removal of old brick sewers which were discovered in digging the foundations. This could hardly have been foreseen, and no explanation is necessary on this point. With regard, however, to the amount, 203*l.* 14s. 3d., due on variation on fire-proof floors and constructional ironwork, some remarks are due. When the original specification was being discussed, with a view to ascertaining what saving could be made in the cost of the building, it was pointed out by the architects that by the substitution of Messrs. Holloway's floor of steel joists and roof for Messrs. Homan & Rodgers' floor and roof, a considerable saving, viz.: from 200*l.* to 300*l.* would be made. On this point we understand the builders were consulted, and they stated that the proposed deviations from the specification would be a saving. We were therefore surprised to learn this has not been case. We have carefully gone into the matter with the architects, who state that they consulted Messrs. Holloway Brothers, and were given to understand that the alteration would effect a saving. The architects further state that the builders admit having advised the use of an ordinary concrete floor and steel joists for that specified, but consider that in working to the architects' revised drawings and having the work measured up by the Council's surveyors at completion they are absolved from any responsibility as to cost. The builders are not prepared to make any reduction, and as the quantity surveyors and architects have duly certified the account we see no alternative but to recommend—

'That, subject to an estimate to be submitted by the Finance Committee in accordance with the statute, the account of Messrs. Holloway Brothers for extras on the contract for erecting the Parker-street lodging-house, amounting to 1,053*l.* 13s. 2d., be paid.'"

Appointment of a District Surveyor.—Mr. Parsons, district surveyor for Lambeth (south) and part of Camberwell, who was dismissed by the Council in January last, having been convicted for travelling on the railway without having paid his fare, and who afterwards brought an action against the Council in the Chancery Division, in which Mr. Justice Stirling decided that he was not guilty of the offence charged, was on the recommendation of the Building Act Committee, reappointed to his former position.

The Thames Conservancy.—The Chairman announced that the ballot for the election of three members to represent the Council on the Thames

Conservancy Board had resulted in the election of the following members:—Mr. Charles Harrison, Mr. Basset Hopkins, and Mr. M'Dougall.

The Council adjourned shortly before seven.

Books.

Handbook on the Steam-Engine. By Herrman Haedar and H. H. P. Powles. London: Crosby Lockwood & Son.

THIS volume forms the English edition of a handbook upon the steam-engine, originally written in German by Herr Herrman Haeder, for the use of engine-makers, mechanical draughtsmen, engineering students, and users of steam power, with especial reference to small and medium-sized engines, and has been translated by H. Powles, with considerable additions and alterations from the second German edition, and forms a most compact and clearly-written work, free from tautology. The illustrations are well produced, and the tables of dimensions recording actual practice are most useful guides for detail work.

In 1685 an engine was made to prove the use of steam as a motive power. Watt's first engine was built in 1768, since which date various types of engines have been forthcoming. Some in favour of vertical engines urge that in horizontal engines the cylinder is apt to wear oval. Crank shafts were usually made of wrought-iron, but now are almost always of mild steel. The balance weight should act in the same plane in which the parts to be balanced move; hence, it is wrong to balance the crank, connecting-rod, piston, and crosshead by applying the balance-weight to the fly-wheel. The heating of bearings may proceed from the construction, maintenance, or attention, or rather want of attention, whilst at work, and even when at rest. To prevent hot bearings, the brasses should always be bored out a fraction larger than the measured diameter of the shaft, which runs in them. A tight fit is not necessarily a good fit. With crank pins the heating is not always caused by want of truth in the form of the pin, but probably from the pin not being perfectly in line with the crank shaft. Hot bearings cost a factory considerable sums of money. Lubrication is a necessity; a simple oil-hole in a long bearing is totally inadequate.

Such are some among the many practical hints contained in this book, which resembles an improver's note-book, but it is to be regretted that the index at the end of the volume is merely an alphabetical table of contents. So many points are noted in the letterpress that the index deserves to be more in detail and the matter referred to under more than one heading. Reference to pages by both subject and name would have rendered the index to this practical volume more useful.

Engineering Materials. By Edward C. R. Marks. London: John Heywood.

THIS small volume purports to be a revised series of articles upon mechanical engineering materials, which originally appeared in *The Practical Engineer*, and has been compiled by the Lecturer on Engineering at the Birmingham Municipal Technical School, to assist his own and other pupils. In dealing with the properties and treatment of materials in mechanical work, he does not enter into detail upon the principles of any manufacturing process, such as may be found in any book on metallurgy, but gives practical hints as to factors of safety, the strength of copper, brass, bronze, and bearing metals; the transmission of power by belts, and working of spur and toothed gearing, also the mode of workshop tests for unit sections of iron and steel. The book contains just such information as a practical mechanic who had received a training at a good technical school would be able to impart, and so far will prove useful to mechanical students.

Opening of an Exhibition at Hull.—An exhibition of industrial arts and manufactures was opened in the Artillery Barracks at Hull on the 7th inst., by the Mayor of the Borough (Ald. George Hall). Mr. Phillip Shrapnel has had the organisation of the exhibition, and the space has been largely taken up by local tradesmen. The large hall of the building is divided into avenues for the display of goods, the repository shed is set apart for machinery in motion, and the gun-room for the show of pictures and other articles appertaining more particularly to high art. From the manager it was ascertained that the object the promoters have in view is the fostering of a healthy competition.

Correspondence.

To the Editor of The Builder.

RHINE CHURCHES REVISITED.

SIR,—To one who revisits a scene or an object which at one time moved his admiration or afforded some example of study or reflection only to find it altered or destroyed, the mere disappointment, though great, can be supported with equanimity; but when this object is of superior artistic worth, a great relic of antiquity, an historical landmark, and an example of a far-off period of religious zeal, disappointment turns to disgust, and regret to anger, and one is apt to give vent to one's feelings by crying out to one's fellow artists, and relieve one's feelings by writing to the *Builder*.

Such has been my experience lately in revisiting the scene of some of my early studies on the Rhine;* such objects as churches and ecclesiastical buildings, which when first seen and studied were almost unrepaired, in much of their pristine glory, adorned by the hand of time and most certainly un-"*restored*."

That some reparation was needed there could be no doubt, in many cases, if the buildings were to remain as visible "objets d'art" at all, or if the historical monument was not to lapse into a heap of useless *débris* covering the ground and inviting ignorant local authorities to clear away as rubbish what was of extreme worth as architectural art.

Fully and most distinctly admitting this, and knowing well how difficult it is to deal with dilapidated buildings so as, on the one hand, not to destroy features of priceless value, but to make permanent the interest which seems passing away even as one enjoys it, and on the other to preserve every stone which has any mark of real date upon it and every relic of handiwork and skill without identifying modern craftsmanship with the old nor replacing yesterday's work with to-day's, I yet must protest as vigorously as I am able against what is now going on, and alas! what *has* been done recently under the name of *restoration* in this part of Germany. As far as I have seen, and I fear this is only a sample of what is being done elsewhere, the grand old Romanesque churches, which have been spared by the wars and tumults raging around them or in their midst for hundreds of years, and which time has dealt tenderly, or even lovingly, with in bestowing those tints which age alone can give to old buildings and carved work, have now been repaired and improved beyond all knowledge, and, indeed, beyond any sort of interest in the work as completed, leaving smooth, new surfaces in place of weather-worn touches, and clean, round, faultlessly regular arches, pediments, and spilets, where there used to be those broken lines of picturesque wear and tear, and the colour of stones and variable jointings which speak out history and often proclaim the architectural attainments, if not the names of those who built them, as if they had been engraved in the walls.

Instances of this are specially to be noted at Coblentz, Mainz, Bonn, Cologne, &c.

To St. Castor at Coblentz† so much has been done that all the spirit of the work on the exterior is destroyed; no one cares any more to see or sketch it, and it is no good for study, a paper model or a photograph showing as much as a visit to the spot. Here the last portion of the restoration work was being pushed on (it seemed hastily, as the Emperor's visit was approaching), viz., the rebuilding of the top of the last one of the turrets at the side of the eastern apse, all else being apparently renewed, not repaired. A hoarding around the church contained many of the old stones and stonework, which I venture to say might well have been re-used even if they need have been removed from their original setting at all; certainly one would have rejoiced to have had some of these old stones in a museum for study, and if good enough for this surely they might have been retained in their original position.

Now St. Castor dates from the ninth century, and is a special example of the wonderful development of pre-Gothic art and the most delightful form of Romanesque art.

Again at Cologne, especially St. Aposteln, work had been done which took all pleasure out of the building, and at St. Pantaleon made it appear as of date with some surrounding barracks.

Exceptions, of course, must be made in some cases for certain parts, but even where the old work has been retained in form it has been robbed of its ancient surface and colour by new decorations, done to the death, or false jointings. The sooner this comes to grief the better. Our only hope is in old Time again, that to future generations he will kindly show some of the really ancient forms by sweeping away modern impertinences.

At Maintz, happily, at present things have not gone too far, but they are progressing. The glorious picturesqueness of the prince of Rhine Cathedrals is not gone yet; the galleries of the apses remain, and the wonderful central dome and spire; but still restoration is coming, and one must admit there is some reason for some reparation. Of course, one notices that much of the tracery of the cloisters and elsewhere really wants kindly care and attention simply to preserve them. But, alas! one fears that this will be the excuse for improving it all out of knowledge, unless some much more reverent hand is laid on Maintz than has been elsewhere.

Worst of all at Bonn, a church of great interest with much remaining of the twelfth and thirteenth centuries, where at least under the eye of the university, one might hope for respect towards the work of our forefathers. Men, inside and out, in all parts of the church, are *tooling down*, with *sharp chisels* and hammers to *straight edges* carefully applied, all bases and mouldings, whilst the caps and shafts and wall surfaces have been rubbed and smoothed and treated in the same way on the interior for the purpose of painting, gilding, and colouring, and outside it would seem simply for smoothing's sake. Three men were at the west, two in the southern, and two or three elsewhere and outside, many in the gallery over the south and eastern parts of the church, and no one architecturally learned need be told that these external galleries, with their delightful little shafts, caps, and arches, are one of the chief and universal features and adornments of the Romanesque style.

Many other churches not visited seemed at a distance too new and clean to be the ancient work, and apparently had undergone this same wholesale process of reproduction.

One trembles for Aix-la-Chapelle,* the glorious shrine of Carlovingian memories and renown, happily at present somewhat neglected in its faded and dignified beauty, and other such fanes of architectural glory.

But here there were hoardings in the cloisters within which ominous sounds and signs of workmen's hammers were heard, and over which were seen traceries, vaultings, looking very new and smooth, close to others in a semi-ruinous condition.

Now one fears greatly for what is about to happen, and trembles lest the departure of the great charm of those grand old buildings dating from the tenth century should be close at hand. I counsel all young architects who may think of flying past on their way to other and more distant fields of study to stop at Aix, not an hour only, but take time to draw and measure and sketch, if it be only the marvellous ironwork balcony round the upper gallery of the dome, and so like that of Roman temples that it alone goes to justify the term of Romanesque.

C. Forster Hayward.

"THE MANX CROSSES."

SIR,—It is clear that Mr. J. R. Allen and Mr. J. H. Spencer have not given any consideration to what I have written about the crosses. Mr. Allen also writes without an accurate knowledge of the crosses.

The "many very misleading statements" about the crosses which he has discovered in my communication, and which he has endeavoured to correct, have a closer relation to the facts than have his corrections.

It is impossible to classify the crosses of the island into "distinct types" related to the crosses of different archæological areas, without ignoring the natural elements of art which exist in them as in all artistic work, without ignoring the evidences they present of their common and personal origin—the remarkable unity of forms and fancies, of execution and sentiment, which certainly exist among them all.

I am not responsible for the statement that Gaut made all the crosses; it is no theory of mine.

The "absurd mistake" has not been made by me. The group is almost as I have shown it. I went to Kirk Michael specially to see Malumkun's Cross, and to confirm to myself what I was already sure of by heart. There is no T-headed key for tuning the strings of the harp; the lower part of an animal

* Referring to a Prize Paper read at the Inst. Brit. Architects, April, 1855, and published in their Volume of Papers read for the Session 1854-55.

† Original consecration recorded as in 836 A.D.

* Erected by Charlemagne, 802 A.D., on an older foundation.

is there, so that were it looked at with half an eye it could be seen.

Further, on the Manx crosses an object is always shown by relief, never by an incision such as the T-shape is. AD. KNOX.

TAR FOR TIMBER AND PANEL.

SIR,—Unless "Architect" should wish for really black timbers, I should advise him to use the carbolineum made by Peters, Bartsch, & Co., of Derby. By its great power of penetration it is a far better preservative than any preparation of mere tar, and very little more costly. It leaves the surface of the wood darkened but not covered with black. It may be renewed without having to clean off the old. It should be put on hot, in two coats. There must be nothing under it in the shape of oil or of soft putty, nor of cement, or plaster which is not first proper set and dried out.

WILLIAM WHITE, F.S.A.

MESSRS. ERARD'S NEW ROOMS.

SIR,—My attention has been drawn to a paragraph in your issue of the 7th inst. about Messrs. Erard's new premises.

I beg to say the concert-hall (to hold 1,200) was abandoned owing to the action of the County Council. The new building will contain show-rooms, offices for the staff, and a suite of apartments on the top floor. PERCY G. STONE.

The Student's Column.

GEOLOGY.—XVI.

THE ORIGIN OF SCENERY.

THE present configuration of the surface of the land is due to the action of what are called the "agents of denudation," both in their destructive and reconstructive capacities. Whether rocks exist as enormous beds of strata, or as masses of igneous origin, they are very unequal in point of hardness, and differ widely in regard to their power of resisting decomposition. The denuding agents also are of unequal power, and have not the same force in one locality as in another; nevertheless, whether on a large scale or a small one, they are continually waging war with the rocks, endeavouring to destroy and remove them from the face of the earth. This conflict has gone on since the time of the formation of the earliest rocks at the surface, and has exerted material influence in determining the present physical features. During it, whole formations of vast thickness and extent have been utterly destroyed, whilst nearly all the old rocks engaged in the strife have been maimed and mutilated. These latter have had a veritable struggle for existence, though whether the law of the survival of the fittest is vindicated by what remains is a matter of opinion. The rocks, however, would unquestionably have been routed long ago and razed to a dead level had they not possessed a powerful subterranean ally which elevated them above that level as rapidly as they were worn away, or depressed by their enemies. The underground forces, as we know from what has been said in previous articles, have not acted equally, or evenly; they seem to have concentrated their power of elevating on certain points, and along definite lines, whilst they have not hesitated to withdraw their support, allowing the land to sink in certain regions, in order that full strength may be available in resisting the onslaught on other districts. In a few regions the subterranean powers have boldly endeavoured to assert their superiority by elevating enormous rock masses to great heights on the earth's surface; but the agents of denudation, ever on the alert, have called forth special methods of attack in such situations, and there the struggle is, at the present day, short and sharp, whilst great excesses are committed on both sides.

Agents of Denudation.—We have described the principal rocks found at the earth's surface; we have also said something concerning the nature of the subterranean forces; but we have not yet alluded to their opponents—the various instruments called "agents of denudation," and their methods of action, let us therefore now do so. The denuding agents may be divided into two groups; those which act (1) Chemically, and (2) Mechanically. Certain of them are endowed with power to act in the dual capacity.

Air under certain circumstances becomes a powerful denuding agent, and is at all times ready to assist its allies. When heated by the sun and then suddenly cooled as the latter disappears beneath the horizon, its effects on rocks are very marked, especially in countries where great range in diurnal temperature takes place. Dr. Livingstone found in Central Africa, for instance, that surfaces of rock which during the day were heated up to 137 deg. Fahr., cooled so rapidly by radiation at night, that, unable to sustain the strain of contraction, they split and threw off sharp angular fragments, from a few ounces to 100 lbs. or 200 lbs. in weight. On a journey a few years ago through the mountainous tracts of Algeria in the summer time, we frequently noticed that the surfaces of the rocks were crumbled to dust from the same cause, which the hot wind removed in clouds from time to time, and during the evening large slabs would become detached, rebounding from ledge to ledge down the mountain side. Moving air, or wind, has also considerable power; it takes up particles of sharp sand, and hurling them against solid rocks, chips small particles off the latter, and where possible polishes them. The destructive action of this sand-blast is well marked in parts of Egypt, New Zealand, and the United States. The geological effects of wind in connexion with the origin of scenery are well exemplified in the formation of sand-dunes and æolian rocks generally.

Rain acts in a dual capacity as a denuding agent. Chemically it disintegrates rocks, forming soils, and sinking into the ground is instrumenta in excavating caves and widening fissures. Mechanically it shifts along loose materials, and often makes use of them for abrading purposes. By itself rain has very little power to do chemical work. In descending from the clouds, however, it takes up small proportions of air, which contains carbonic acid and other ingredients enabling it to accomplish the chemical changes upon rocks and soils alluded to. It is no part of our present purpose to describe the actual processes by which these changes are brought about, but in the aggregate they produce the most widespread effects in sculpturing the land. The general result may be considerably modified, depending upon the nature of the rocks acted upon. Thus, in a limestone area the chemical effect of rain is most marked, as is evinced by the enormous quantities of carbonate of lime found in the waters coming from such districts, and which has been directly derived from the decay of limestones. On the other hand, rain has very little chemical effect as a denuding agent in districts where slate, schist, and similar rocks abound; we have noticed in parts of North Wales, for example, that the striæ made during the time when that country supported glaciers are apparently as fresh as when they were first scratched on the surface of the rocks, thousands of years ago.

Rain-water exerts considerable mechanical action where it derives sufficient velocity on sloping land or the precipitous mountain-side. Its power to do work in this direction is, of course, entirely governed by concomitant circumstances. In those parts where the rocks are readily disintegrated, it finds most work to do in washing away the detached particles, and in taking them down the hill-side by the little channels it has already carved out, to the nearest river. A fresh face of rock to be acted upon is thus exposed.

Rivers and *Streams* not only do an enormous amount of transporting work, but are great factors, in conjunction with rain runlets, in excavating valleys. The surface configuration of nearly the whole of southern, south-eastern, eastern, north-eastern, and central England has been brought about by the combined action of rain and rivers.

Ice, also, is responsible for a large amount of denudation. It acts as a disintegrator in forcing pieces of rock asunder, thus loosening them from their parent mass. This action may be briefly described as follows:—Small cracks, or microscopic holes in rocks at the surface, frequently contain water which, on freezing, expands and exerts tremendous pressure, causing the fracture, or hole, to enlarge, or crack further, thus breaking up the surface of the rock, and re-cementing it for the time being with ice. When the ice melts, pieces of the rock naturally become detached, and the whole disintegrates.

Glaciers are great excavators in solid rocks. At the present day they are confined to the frigid zones, and to high mountainous areas in temperate and tropical climates; but there was a time not long since, geologically, when this country supported several large glaciers, and many surface features in North Wales, the Lake District, and in mountainous areas in Scotland, are the direct effects of glacial action. There is evidence that the whole of England was recently covered by an ice-cap similar to that now found in Greenland. As to how far the soft rocks on the surface of this country have been modified in their appearance by the planing action of such an ice-sheet it is impossible to say; but many of the valleys in North Wales and Scotland have been deeply excavated by glaciers. The action of the latter in this respect may thus be summarised. These rivers of ice are frequently hundreds of feet in thickness, and are rent from top to bottom by large cracks. Pieces of stone fall on the glacier from the rocks along its flanks, and a large quantity of these find their way by the cracks or otherwise, to the bottom. As the glacier slowly moves, the hard pieces of stone at its base are dragged along, filing off irregularities, and scoring its rocky channel with small furrows, or striæ. This action, continued over a long period, gradually excavates the bed of the ice river to a great depth. Such picturesque valleys as that of Nantffrancon, near Snowdon, owe, if not their origin, at least their present shape, to the power of glaciers.

OBITUARY.

MR. FORD MADOX BROWN.—Mr. Ford Madox Brown, the artist, died on the 6th inst. at his residence, St. Edmund's-terrace, Regent's-park. The deceased was born at Calais, of English parents, in 1821, and was educated on the Continent. It was not till 1844 that he took a decided step as an exhibitor in England by sending two cartoons to Westminster Hall. Shortly after this he visited Italy. At the Royal Academy in 1851 he produced his large picture of "Chaucer at the Court of Edward the Third," which had been several years in progress. This picture, among those selected by Government for the Paris Exhibition of 1855, received the Liverpool prize of 50*l.* in 1858. After 1852, Mr. Brown, though exhibiting at times at Liverpool, Edinburgh and other places, did not again come before the London public till 1865, when he opened an exhibition in Piccadilly of fifty pictures, and as many cartoons and sketches. He subsequently painted many well-known pictures, and his last oil picture of importance is "Wyclif on Trial at Old St. Paul's," a composition including more than 100 figures, now introduced as one of the fresco series on which he was engaged for the past eleven years in the Manchester Town Hall. Mr. Ford Madox Brown frequently lectured and wrote on art.

GENERAL BUILDING NEWS.

NEW MOTHER LODGE AT KILWINNING, AYRSHIRE.—The New Mother Lodge at Kilwinning was opened recently by the Hon. Thomas Cochrane, M.P., Grand Master of the Lodge. The foundation-stone of the new building was laid in September last. It has a frontage to Main-street, and the style adopted is that of the Scottish Renaissance. An arched doorway, forming the main entrance, occupies one side of the frontage, and in the centre is a double window lighting the main committee-room; over the door and windows moulded trusses carry a stone balcony and balustrade, which run along the whole frontage, and also carry a projecting five-light oriel. Above this is a deep-pitched gable, with moulded steps, and across the gable is carried a broad sculptured band bearing the words "Mother Lodge" on the background of thistle enrichment. The front is of red sandstone from Mauchline Quarry, and the roofs are covered with a pale green slate, finished at the apex with red tiling. Entering the porch, a tiled vestibule leads to the inner staircase hall, from which the lodge-room is entered, and a wide square staircase gives access to the upper floor. The lodge-room, 42 ft. by 25 ft., with a coned ceiling, and partly open-timber roof, is entirely sky-lighted. On the ground floor, there will be a committee-room and other accommodation. On the upper floor are two waiting-rooms. The building has been erected from designs by Mr. John B. Wilson, A.R.I.B.A., under the supervision of Mr. John Armour, jun., Irvine, resident architect.

ADDITIONS, ST. CATHARINE'S CHURCH, CANTON, CARDIFF.—The additions which have been made to the church of St. Catharine, King's-road, Cardiff, have just been consecrated. The edifice was commenced several years ago, but lack of funds prevented its completion; and although considerable improvements and extensions have been made, a good deal of work still remains to be done. The new portions of the building consist of a chancel 40 ft. long and 24 ft. wide, a south aisle organ-chamber, and choir and priests' vestries; the work being in the Early Decorated style. The floor is laid with encaustic tiles, and coloured bricks, relieved by dressings of stone, have been used for the interior of the building. As yet the furnishings of the church are not fixed, and the stalls are only temporary in character. The windows are adorned with glass of an antique pattern, by Savell, of London. About 2,400*l.* is the estimated cost of the work already done, and another portion of the nave at the west end of the church is to be added when funds allow. The church when completed will afford sitting accommodation for over 800, and the extensions

have been carried out from the designs of Messrs. Kempson & Fowler, architects, Cardiff; the contractor being Mr. W. Symonds, of Canton.

University Extension College, Reading.—The fifteenth-century building originally used as the dormitory of the Hospitium of St. John attached to Reading Abbey, restored some three years ago by the Corporation of Reading, to whom it belongs, and adapted to the purposes of the College, having been found inadequate as to size on account of the great increase in the number of students, it became necessary to provide additional accommodation, and with great liberality and public spirit the Chairman of the Council, Mr. Herbert Sutton, to whom the college is under great obligations, bought the vicarage of St. Lawrence, which adjoins the Hospitium, at a cost of 4,500*l.*, and has undertaken to convey the property to the college at any time during the next three years for 4,000*l.* Pending the accumulation of this fund, he has let the house to the college at a nominal rent. In order to adapt the vicarage to college purposes, and to connect it with the Hospitium, some considerable alterations and improvements have been made in the internal arrangements of the buildings, and there have been added a corridor, a new Biological Theatre, and laboratory; a new physical laboratory and workshops; a common room for the staff; and lavatories and retiring rooms. Some further addition, as a memorial to Mr. W. J. Palmer, the first President of the College, is also intended, for which a fund is being raised. The works have been carried out by Mr. E. MacCarthy Fitt, builder, of Reading, and Mr. S. Slingsby Stallwood, of Reading, is the architect.

New Church for Liversedge, Yorkshire.—The little church of St. Barnabas, Highton, Liversedge, was consecrated by the Lord Bishop of the diocese a short time since. The contracts were let for 3,537*l.*, in addition to which about 500*l.* is needed for a boundary wall, furniture, &c. The church will seat about 380 persons. The plan comprises a south entrance porch, 10 ft. by 8 ft.; a nave and aisles 56 ft. 6 in. long, the former being 20 ft. wide, and the aisle 9 ft. 6 in. wide; and a north transept 15 ft. long by 12 ft. 6 in. wide. In continuation eastward of the south aisles is the organ chamber, 15 ft. 6 in. by 10 ft. 6 in. The chancel is 28 ft. 6 in. long by 20 ft. wide, having open seats with carved ends. To the north of the chancel are separate vestries for the clergy and choir, fitted with all requirements. The roofs are constructed of open timber work, stained dark, and the seats, which are cut from pitch-pine, are stained a rather lighter tint. The pulpit and font are of St. Michael's Mount stone. The architect is Mr. W. Swinden Barber, of Liversedge. The contractors were:—Messrs. W. & J. Milner, Mirfield, masons; W. Halliwell, Brighouse, carpenter and joiner; J. Naylor & Son, Halifax, plumbers and glaziers and hot and cold water engineers; Rushworth & Firth, Halifax, slaters and plasterers; S. Kendall, Huddersfield, painter and stainer.

The Edinburgh Merchant Company's Schools.—The secondary schools of the Edinburgh Merchant Company were opened on the 2nd inst. During the vacation considerable structural alterations have been carried out on George Watson's College and George Square Ladies' College. Various plans were considered, and various sites talked of, but finally it was resolved to erect two new wings to the old school, and to rearrange the institution so as to have the elementary department in one of these wings. That work has now been completed, and a new gymnasium has also been built at the back of the existing building. Two new staircases connect the main building with the wings, in each of which there are six large class-rooms and three small ones. The cost of the additions amounts to between 10,000*l.* and 12,000*l.* Upon George Watson's Ladies' College extensive improvements have also been completed. Last year the Governors acquired a house to the east of their property, and on the site they erected a new wing. This year they have erected, in lieu of the old building on the west side of the school, a new wing, corresponding to that on the east, but of somewhat larger dimensions. Roughly speaking, the cost will be about 5,000*l.* The work has been carried out by Messrs M'Gibbon & Ross, architects, Edinburgh.

Gasworks, Ancoats.—The contract for the Carbonic Acid Gasworks, to be erected in Pollard-street, Ancoats, Manchester, has been let to Mr. James Byrom, contractor, Woolfold, Bury, his estimate being 2,715*l.* 3s. 9d. Messrs. Maxwell & Tuke, of Manchester, are the architects for the building.

New Church, Gateshead.—The foundation-stone of the new church of St. Aidan, which is being erected at Bank-street, Gateshead, in memory of the late Bishop Lightfoot, was laid on the 7th inst. by the Bishop of Durham. The new church will accommodate about 500 people. Being built on a slope, the schools are placed beneath the church, and will accommodate about 400 children. The cost of the buildings is 5,000*l.* The architect is Mr. Stephen Piper, the contractors Messrs. Haswell & Waugh, Gateshead, and the clerk of works Mr. Richley.

Mission Hall, Belfast.—The foundation-stone of the Beechpark Mission Hall new building, which is being erected in Hillview-street, Oldpark-road, Belfast, was laid on the 7th inst. The new hall, which will have frontages to three streets, will have high-pitched gables and projecting barge-boards. The superstructure will be built out of selected perforated brick. The main side walls will be about 20 ft. in height, and the height of the interior from floor to ceiling will be 28 ft. White stone dressings will be used throughout. The roof is to be surmounted with a Bargle's ventilator, with an ornamental canopy over the same. The interior of the building will comprise a lecture-hall, a reading-room, the necessary sanitary apartments, a cloak-room and a kitchen, and there are to be two galleries. The style of the building will be Gothic. The builders are Messrs. Milligan & M'Cartney, and the architect is Mr. John Fraser, C.E., of the firm of Messrs. Fraser & Son.

The New Technical School, Birmingham.—The tender of Messrs. W. Sapcote & Sons for the work of erecting the new Technical School in Suffolk-street for the sum of 47,489*l.* has been accepted.

Fine Art Gallery, Peckham-road.—On Monday the Prince of Wales opened the South London Fine Art Gallery, which is situated in the Peckham-road. The building includes picture galleries, a lecture room, and a library. It has been designed by Mr. Ernest George, and has been built by Messrs. Prestige & Co., Grosvenor-road, Pimlico. The picture gallery skylights have been glazed on Messrs. W. E. Rendle & Co.'s patent invincible system.

Alterations to the West Ham Parish Church.—The parish church of West Ham, which has undergone considerable alteration and improvement, was re-opened recently. At various periods the church has undergone alteration and restoration. The latest work was carried out through the exertions of the Rev. A. R. Pelly, the vicar. This work included the removal of the one remaining gallery in the south aisle, the cleaning of the interior, the addition of choir and clergy vestries in place of the old vestry, and the restoration of the south aisle. The work has been carried out by Mr. J. Smith, of Witham, under the supervision of Mr. C. C. Winmill, the architect. The loss of seats consequent upon the removal of the old gallery has been compensated for by utilising and seating the old vestry and other portions of the church hitherto unoccupied, 100 new seats having been thereby provided. The lighting of the nave and aisles has been improved; new stone windows have been substituted for the old ones in the south aisle; and the removal of the gallery has added to the natural light in the body of the church. The new vestries built at the south-west corner of the church are of Kentish rag with dressed stone facings. The organ has also been restored and partially rebuilt.

Proposed New School, Partick, Lanarkshire.—On the 5th inst., at the Partick Dean of Guild Court, an application was made by the Govan Parish School Board, for leave to erect a new school. The application was granted. The building will consist of four stories, and will accommodate 1,500 scholars, the cost being estimated at from 18,000*l.* to 20,000*l.* On the basement will be the janitor's house, boys' workshops, heating and engine rooms, &c. In connexion with the school there will be a laundry. Messrs. H. B. & W. Steel & Balfour, Glasgow, are the architects.

Central Library, Camberwell.—On Monday, the Prince of Wales opened the Central Library, Peckham-road, Camberwell. The new building is in the Renaissance style, and has been designed by Mr. R. P. Whellock, of Finsbury Pavement, E.C., the builder being Mr. J. O. Richardson, Peckham. Externally the material used is red brick and Portland-stone, the arcaded porch being supported by Ionic columns of polished Cornish granite, while granite steps lead to the vestibule. The main corridor is 10 ft. wide, partitioned with arcaded grey granite columns, the lending library and news room being to the right and left of the corridors. The cost of the building is about 12,000*l.* At the back of the building is a public garden and recreation-ground.

SANITARY AND ENGINEERING NEWS.

New Reservoir, Cardiff.—A meeting of the Cardiff Waterworks Committee was held at the Town-hall on the 6th inst., when Alderman David Jones presided. A report of the cost and dimensions of the No. 1 Reservoir in the Taff Vawr Valley was submitted by Mr. J. A. B. Williams, the waterworks engineer. The length from one side of the embankment to the other would be 1,060 ft., and 1,300 ft. from one end to the other. From the bed of the river to the top would be a distance of 63 ft., and the greatest depth of the trench would be 70 ft. The height from the foundation to the top of the valley would be 114 ft. The greatest width at the base would be 1,400 ft., and the width of the top would be 30 ft. The cost was estimated at 198,723*l.* This sum would, however, include the making of a railway seven miles and a-half long. The report was adopted.

Sewage Disposal Works, Alnwick, Northumberland.—A public inquiry was held on the 10th inst. at Alnwick, by Mr. F. H. Tulloch, A.M. Inst. C.E., Local Government Board Inspector, with reference to an application by the Alnwick and Canongate Local Board of Health for sanction to borrow 4,570*l.* for proposed high level intercepting and relief main sewers and sewage disposal works, and 350*l.* for private street improvement works, in accordance with the plans, &c., prepared by Mr. Geoffrey Wilson, Town Surveyor, and adopted by the Local Board.

New Bridge, Cambuslang.—The new bridge over the Clyde at Cambuslang has been opened for traffic. It has been built from designs by Messrs. Crouch & Hogg, C.E. The bridge consists of three lattice girder spans of 90 ft. each, with masonry piers founded on cylinders sunk into the bed of the river. In connexion with the bridge there is about three-quarters of a mile of new roads forming direct communication between Cambuslang and Tollcross. The total cost of the works has been about 10,000*l.* The contractors for the bridge and new roads were Messrs. John Paton & Co.

STAINED GLASS AND DECORATION.

Window, Parish Church, Barnes.—A three-light east window was recently unveiled at the Parish Church, Barnes, the subjects being the Crucifixion in the centre light, the Blessed Virgin and St. John in the left and right lights respectively. The figures are treated very conventionally in antique glass, with full tones upon a background of gold and yellow, the draperies and canopies being diapered after the manner of old English glass of the fourteenth and fifteenth centuries. The window was designed and executed by Messrs. Percy Bacon and Brothers.

New Window at the Parish Church, Athelhampton.—A new window has just been dedicated at the parish church of Athelhampton, Dorsetshire. This completes the chancel windows, which are now all filled with stained glass. The latest addition represents the archangel St. Raphael, the work being executed at the studio of Messrs. Heaton & Butler, of London.

FOREIGN AND COLONIAL.

France.—Mr. Evans, an American residing in Paris, has given a large house belonging to him at Passy to be transformed into a boarding-house for American young ladies coming to Paris for the study of art.——The late Dr. Charcot has left to the Louvre a curious album of drawings and water colours by Delacroix, made in the course of a tour in Morocco, in which the great painter had embodied his notes and impressions of the country. ——At the École des Beaux-Arts an exhibition has been opened of the stained glass designs submitted in competition for the windows of the Cathedral at Orleans, in which are to be represented the principal episodes in the life of Joan of Arc. There are twelve competitors, among whose works those of M. Albert Maignan and M. Champigneulles are most conspicuous for excellence.——The "Prix Jarry," founded in favour of a "Pensionnaire" architect returning from Rome, has been awarded to M. Chedanne, who obtained the Prix de Rome in 1887.——A new Maternity hospital is shortly to be built in Paris, on part of the site of the Hôpital St. Antoine. It will have a special entrance in the Rue de Chaligny.——The town of Lyons is about to build a hospital for female convalescents, thanks to the liberality of an inhabitant of the town who has left a sum of 900,000 fr. for the purpose.——In the course of the foundation works for the new Mairie of the Xth Arrondissement (Paris) the workmen have discovered the arch of a subterranean bridge near the corner of the Rue Château d'Eau and Rue du Faubourg Saint-Martin. The bridge must have formerly crossed a stream indicated in the plan of Turgot (1730), and known under the name of the river "de la grange-batelière," or "de Menilmontant." Traces of this stream were formerly discovered in preparing the foundations of the Paris Opera House. It flowed into the Seine after traversing the Champs Elysées. ——The railway company "de l'Ouest" has prepared the plans of a line between Dieppe and Hâvre.——A considerable quantity of ancient pottery, of a red terra-cotta, has been discovered in a field situated at the mouth of the Touch and the Garonne, in the outskirts of Toulouse. Some pearls and amber have also been found, and a search for further remains is being continued.—— The statue by M. Barrias, "La Nature Mystérieuse et Voilée se decouvrant devant la Science," which was a conspicuous work at the Salon of this year, has just been erected on the façade of the building of the Faculté de Médecine at Bordeaux.——The sea-painters, M. Dumoulin and M. Paul Jobert, have been commissioned by the Government to proceed to Toulon to make studies for the picture intended to recall the meeting of the Russian and French fleets in the Mediterranean.—— At Etoile (Drôme) last Sunday was inaugurated a monument commemorating the Provincial Federation in 1789. The monument consists of a pedestal supporting a column with an Ionic capital, surmounted by a star.——The sudden death is announced, at Moscow, of a designer who had acquired a certain reputation in the illustrated Parisian Journals under the name of "Dick de Lonlay." His real name was Georges Hardoin.——

M. Michel Hardengue, landscape painter, has died at Bourboule at the age of forty-two. He was a pupil of M. Bonnat, and his works have figured, since 1875, in the Champs Elysées Salon. Among them may be named "Le Pain Beni" (1884), and in the last salon, "Le Soleil Couchant au Tréport."

BAVARIA.—A gathering of the members of the various societies whose object it is to develop what is termed in Germany a "rational" art feeling, has been held at Munich, and a special exhibition of the "rational" painters' materials was opened in connexion with it. A number of papers have been read by eminent artists as well as chemists, and it has apparently been decided to promote some measures for the restriction of the sale of adulterated paints. The painter Herr von Lenbach presided at the meeting.——The first congress of authorities on the History of Art was held at Nuremberg last week. Papers were read by Professor Dietrichson (Christiania) on "Norse Architecture," and by Professor Neuwirth (Prague) on "Cracow." An institution is to be founded specially for the encouragement of research in the history of art.

BELGIUM.—A set of fifty bells are to be hung in the clock-tower of the Maison du Roi on the Brussels market-place. The bells will cost the town 14,000 fr., and are to be in working order by next October. They will be used by special order of the Municipality for ringing chimes on certain fête days.——According to our contemporary, *L'Electricien*, Brussels will apparently soon have its electric railway. Two underground lines are to be constructed; one connecting the lower town with the Quartier Leopold, the other to follow the course of the boulevards. The total cost of the proposed lines is to be about 17,800,000 fr., and the annual working expenses are estimated at about 750,000 fr.——The necessary buildings for the Antwerp Exhibition are being erected under the superintendence of M. Haas, whose domestic architecture is well known in Belgium. The "Old Flemish Town," which is being put up on the exhibition grounds, is in the hands of the Flemish artist, M. Van Cuyck.——At Ostend, the Eden Variety Theatre has been destroyed by fire.——At Bruges, the workmen employed on the new sewer works came across some well-preserved tombs showing excellent polychrome decoration, and supposed to be of the fourteenth century.

BERLIN.—The title of a "Geheimer Baurath" has been given to Professor Orth by order of the Emperor. He is the only architect practising privately in Germany who has received the distinction which has, so far, been essentially reserved for architects in Government employ. The title was given on the occasion of the consecration of a new church lately completed by Herr Orth.——The gradual alteration of the interior arrangements of Schinkel's Royal Playhouse is at last complete. Both the stage and auditorium have now been made as safe as the original plan of the building allowed. —A very well arranged exhibition of gas apparatus has been opened at Charlottenburg in connexion with a gathering of gas and water engineers which took place at Berlin. The show was considered a very successful one, nearly every kind of burner, cooking-stove, &c., being on view, and many novelties shown.——The amalgamated societies of German engineers had invited essays describing some practical invention for the abatement of the smoke nuisance in large cities and had offered a premium of 300*l.* for the best contribution. The committee of assessors received six essays, but were not satisfied with any of the proposals. The competition is to be repeated.

SAXE-COBURG-GOTHA.—Gotha is to have some new central law-courts and a new prison at a cost of about 22,500*l.* A competition for a design has been opened and some valuable premiums (250*l.*, 150*l.*, 50*l.*) will be given by a jury of seven expert assessors including Professor Ende, of Berlin, and Herr Hugo Licht, of Leipsic.

MISCELLANEOUS.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS. — The Sixteenth Voluntary Pass Examination of candidates for the offices of Municipal Engineer and Local Board Surveyor, carried out by this Association, was held at the St. George's Hall, Liverpool, on Friday and Saturday, October 6 and 7. Seventeen candidates were entered for the examination. The examiners were: Municipal Engineering, T. De Courcy Meade, M.Inst.C.E.; Building Construction, H. P. Boulnois, M.Inst.C.E.; Sanitary Science, A. M. Fowler, M.Inst.C.E.; Public Health Law, J. Lobley, M.Inst.C.E. Mr. Lobley acted as superintending examiner. The next examination will be held in London in April, 1894.

EAST RIDING ANTIQUARIAN SOCIETY. — A correspondent writes:—"Your account of the meeting of the East Riding Antiquarian Society and the Watton Excavations is otherwise so correct that you may not object to have two slight errors pointed out. Page 258, col. 3, line, 5: The great cloister was on the *north* side of the church, not the south. The stone used at Watton is from the lower calcareous grit, of which the nearest outcrop is at Birdsall, near Malton, where the priory owned land. The Rev. E. M. Cole, who has written on Yorkshire geology, tells me that several churches on the Wolds are built of Birdsall stone. At Watton, the local chalk occurs occasionally in interior walling (facing) along with the grit."

INDUSTRIAL EXHIBITION AT HALIFAX. — A trades and industrial exhibition was opened on Monday in the Drill Hall, Halifax, under the auspices of the Provincial Trades Exhibition Company, Birmingham, and with Mr. Edward Cox, of Edgbaston, as manager. The object is to promote the commercial interests of the locality and to instruct and interest the people. There are close upon 150 exhibits, a large number of them illustrating the trades of Halifax and district, and filling the hall and the adjacent gymnasium. The ante-rooms are used for entertainments. The exhibition is lighted at night by electricity. The exhibition is to be continued till November 4.

THE STONEWORK OF THE CAMBERWELL VESTRY HALL.—We are informed that the stonework of the Camberwell Vestry Hall has just been cleaned and restored, the stonework being made to look fresh and clean, while the natural differences of grain and tint are not concealed. We understand that this has been done by treating the work with Szerelmey Stone Liquid after well washing it with soap and water. The liquid is said to waterproof the masonry and preserve it from decay.

THE PLOTTING PARLOUR, HULL. — Ye Old White Harte, a famous hostelry in Hull that dates from the middle of the sixteenth century, has been sold to Mr. Rodnell, of Lincoln, for 5,000*l.* It was in a room in this house, now known as the "Plotting Parlour," that the authorities, during the Civil War, resolved to refuse King Charles admittance to the town.

NEW OVERMANTEL FOR THE LIVERPOOL TOWN HALL. — Considerable interest was manifested recently by the exhibition in the Council-chamber of Mr. Alderman Rathbone's gift of a carved overmantel for the vestibule of the Liverpool Town Hall. The work has come from Sharrott's, Chester, and is a wood-carving in the Jacobean style, the jambs of the gate being supported by large-sized figures. Round the peristyle runs a poetical legend.

PUBLIC WORKS IN ROME.—The British Consul at Rome, in a recent report upon the trade and finances of that city, observes:—The Act embodying the measures adopted by Government in aid of the municipal finances, and for the completion of certain works which had been commenced, did not provide in a definite manner the ways and means for executing the works which the Government had taken upon itself to carry out. Consequently, it was found necessary to submit to Parliament a fresh Bill respecting this work in the capital. According to this Act, which has been adopted and promulgated, the State has undertaken to complete the Polyclinic Hospital by the year 1898, assigning for that purpose the annual sum of 60,000*l.*, and to lay out 1,380,000*l.* upon an additional bridge across the Tiber, completion of Via Cavour and Piazza Venezia, Courts of Justice, &c. The installations in the principal streets for the illumination of the city by electricity, produced at Tivoli in the works of the Anglo-Roman Gas Company, have been successfully carried out, but the system of branching off the wires from the receiving station has been modified. Instead of using overhead wires, which would have given rise to a great many inconveniences and complaints from the owners of houses, the underground system was adopted, both in the distribution of electricity in private houses and for public illumination with street lamps. The two circuits are kept separate and the current is conveyed by independent cables. The streets lighted by electricity are Via Nazionale, new Corso Vittorio Emanuele, Via del Corso, streets leading from the railway station by Piazza Barberini to Piazza Colonna, including the square of that name. The tramway service has reached its complete development in respect to the present requirements of the city, new lines having been laid down, thus completing the net which had been fixed by the communal administration. The lines are all worked by horses, but it is proposed to use electricity on some of them. The works connected with the new quay at Civita Vecchia proceeded uninterruptedly during 1892, and it is expected that by the end of this year the whole of the quay will be above water. The whole work, as far as it is foreseen, will be completed in about two years from the present time.

LEGAL.

BIRMINGHAM CITY POLICE COURTS.

COURT No. 2, before Messrs. Fisher and Warden. Edwin Airey, of Star-villa, Gillott-road, was summoned at the instance of Mr. W. S. Till, City Surveyor, for contravention of the City by-laws in five different cases, in respect to a house that has been erected in Gillott-road; first, for covering up the drain to fresh-air inlet without notice having been forwarded to the City Surveyor's office for its inspection; second, that he did erect an inefficient ventilating shaft in zinc in lieu of iron, as marked on approved drawing; third, that he did extend the building, and construct an internal water-closet without having first deposited and obtained the approval of plans; fourth, for having the drain to water-closet to run underneath a building, where it was practicable to bring separate drains outside; and fifth, for allowing the house to be occupied prior to sending in completion notice.

The defendant was represented by Mr. Mallard, solicitor, and the prosecution was conducted by Mr. Bell, of the Town Clerk's office. The evidence in each of the separate cases was as follows:—

Case No. 1.—Mr. Turner, Drainage Inspector, gave evidence that the drain to fresh air inlet had been covered up, and had not been inspected, and that on being uncovered found that the pipes were not jointed in any way, but that all the joints were left open.

Case No. 2.—Mr. Lloyd, Building Surveyor, stated that the joints of the ventilating pipes were badly made, and would admit foul air into the bedroom window, which was within 6 in. of the same, and that a proper joint could not be made between zinc and iron.

This evidence was corroborated by Mr. Turner and Mr. Osborne, plumber, of Latimer-street South, who stated that he was a man of thirty years' practical experience.

Case No. 3.—Mr. F. W. Lloyd gave evidence that the defendant had extended the building and constructed an internal water-closet, and had departed from the original drawing, and without depositing and having obtained the approval of new plans, this evidence was supported by Mr. Turner, who stated that the work was carried out in an inefficient manner.

Case No. 4.—Mr. Lloyd gave evidence that it was practicable to construct separate drains, and not to run two water-closets into one drain; this was supported by the Drainage Inspector. A plumber, Mr. Marlow, was called by the defendant's solicitor; when asked what he was by the bench he said he was a plumber; asked how long, he replied he was born a plumber. He gave his evidence in such a loose manner that he was ordered to leave the witness-box by the bench.

Case No. 5.—The Building Surveyor stated that he had received a letter from the defendant which said that he had had an application from a person who wished to become a tenant, and he (the defendant) wanted the house occupied at once. Upon visiting the house on June 9 the Building Surveyor found the house had been occupied for some considerable time. Mr. Turner supported the Building Surveyor's evidence, and that he (Mr. Turner) had visited the house on June 3, and found it occupied then. The building surveyor then said that having found the house was a series of contraventions of the by-laws, served notices on the defendant to make the various alterations required, but none of these notices had the defendant acknowledged or complied with in any shape or form, consequently proceedings were taken some six weeks ago, and adjourned for the convenience of the defendant, who then gave an undertaking, through his counsel, that the whole of the works required should be done at once, and to the satisfaction of the surveyor. The work not being done, the case was brought up again.

Mr. Fisher, the Chairman, adressing the defendant, commented very strongly upon his conduct, and stated that the by-laws of the City were made in an intelligent manner for the guidance of architects and builders in general, and that defendant being a practical man should be conversant with their requirements. He stated that disease and illness which was prevalent was largely due to the conduct of such men as the defendant, and he also stated that the officials of the City were endeavouring, and rightly so, to carry these by-laws into effect, and they must be upheld. Continuing, he stated that they had given the case serious consideration, and arrived at the conclusion that the defendant, as a warning to himself and to others, must be made an example of, and in Case No. 1 they should fine him 5*l.* and costs, or one month, and in each of the other cases 2*l.* and costs, or fourteen days, the sentences to run consecutively.

CAPITAL AND LABOUR.

THE LOCK-OUT IN THE BLACKBURN BUILDING TRADES.—After the lapse of fourteen weeks the difficulty in the building trades in Blackburn appears to be no nearer settlement than at the beginning. It will be remembered that the plasterers, who gave notice in March last for an advance, refused to continue at work at the end of the three months unless their demand was conceded. Upon this the masters locked out the carpenters, bricklayers, plasterers, and all the rest engaged in building operations, with the result that 1,200 men have been out of employment all this time. The trades union men say that the whole country has been scoured for "blacklegs," but that, notwithstanding all the allurements offered by the masters, only about fifty men of that class have been induced to come to the town. All building operations are at a standstill.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Drainage Scheme	Staines Local Board ..	.....	Nov. 10

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Sewerage Works	Hendon Local Board..	S. S. Grimley	Oct. 16
Residence, Sutton, Yorks	.....	S. Jackson	Oct. 17
Shop Premises, Albion-court, Bradford	.....	Milnes & France	do.
Additions, &c. Close Hill, Huddersfield	Close Hill Co-op. Soc. Lim.	J. Berry	do.
Sewering Roads, &c. Devonshire Park	Birkenhead Corp.	C. Brownridge	Oct. 18
Roof of Market Hall	Burnley Corporation..	F. S. Button	do.
Vicarage, St. Stephen's-by-Launceston	.....	Hine & Odgers	do.
Brick Culvert	Sheffield Corporation	C. F. Wike	do.
Stores, Tong-road	Leeds Indus. Co-op. Soc. Lim.	.....	do.
Store Premises, Idle Green	do.	.....	do.
Making-up Gladstone-road, &c.	Kingston U.R.S.A. ..	*Official*	do.
Public Offices, Stables, &c. Atkinson-road	Benwell and Fenham Local Board	do.	do.
*Coal Stage, Turntable, &c. Bedford	M. R. Co.	do.	Oct. 19
Water Supply Works, Pontyclun	Pontypridd R.S.A. ..	G. S. Morgan	do.
Laying Pipes	Prestonpans (N.B.) Police Commrs.	Leslie & Reid	do.
School, Gymnasium, &c. Hopwood-lane, Halifax	H. R. S. Jones	Utley & Gray	do.
Street Improvements	Ilkley Local Board	M. Hainsworth	Oct. 20
*Enlarging Post Office, Bolton	Com. of H. M. Works	*Official*	do.
Reading Room, &c. Storrington, Sussex	.....	Mant & Mant	Oct. 21
*Board School	Redbourne Cheney Sch. Bd.	W. Drew	do.
Granite Road Metal (700 tons)	Bishops Stortford Loc. Board	*Official*	do.
*Wrot-Iron Unclimbable Railing	Parkstone Burial Bd.	do.	do.
Additions to School	Wanborough (Wilts) School Board	do.	Oct. 23
*Iron Building (on hire)	South Metro. School District	do.	do.
*Disinfecting Station	Hackney Bd. of Wks.	do.	do.
Valve Shaft, &c. Reservoir, Clough Bottom	Bury Corporation	J. Cartwright	do.
*Police Station, Hemel Hempsted	Herts County Council	U. A. Smith	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Platform Coverings, Footbridge, &c. Bourne End	G. W. R. Co.	*Official*	Oct. 14
Additions to Schools, Fir Vale	Sheffield Union	W. H. Ward	do.
Iron Escape Staircases, Workhouse, Fir Vale	do.	do.	do.
Pipe Sewer, &c. Mosley Common, Lancs.	Tyldesley-with-Shakerley Local Board	T. W. Travers	Oct. 16
*Paving Works, King's-road	Fulham Vestry	W. Sykes	do.
Sewerage Works, Wath	Ripon U.R.S.A.	*Official*	do.
School Buildings, Walsall-street	Wolverhampton S.B.	T. H. Fleeming	Oct. 17
*Kerbing Work	Walthamstow Loc. Bd.	G. W. Holmes	do.
*Fender Chains, Hydraulic Machinery, &c.	Barry Railway Co.	J. W. Barry	Oct. 19
*Opening Bridge, Hydraulic Machinery	do.	do.	do.
*Underground Convenience	Com. of Sewers	*Official*	Oct. 21
*Sewerage Works, &c.	Lewisham Bd. of Wks.	do.	do.
*Enlargement of Marylebone Baths	The Commissioners ..	J. Waldram & Son	do.
Water Supply Works	St. Columb R.S.A.	H. Masterton	Nov. 1
*Laundry, Western Hospital	Mct. Asylums Board..	A. & C. Harston	Nov. 2
School Buildings, Cross Hands	Llandebie U.D. Sch. Bd.	David Jenkins	do.
*Extension of Married Couple's Quarters ..	Woolwich Union	J. O. Cook	Nov. 4
*New Coast Guard Station, Cornwall	Admiralty	*Official*	Nov. 7
Extension of Institution, Silloth	Cumberland and Westmoreland Convalescent Institution	J. Graham	No date
Sinking Shaft, Featherstone, Yorks	Ackton Colliery	Mammatt & White	do.
Chapel and Schools, Summerbridge, Bradford (Yorks.)	.....	W. J. Morley	do.
Coastguard Watchhouse, Gravesend	Ordnance Yard Authorities	*Official*	do.
*Erection of Buildings	British Explosives Syndicate	E. N. Cubitt	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*Assistant Surveyor	Civil Service Com. ..	.....	Oct. 18
*Road Foreman	City of Birmingham..	2l.	Oct. 21
*Surveyor	Penarth Local Board..	200l.	Oct. 21
*District Surveyor (East Newington, &c.)	London County Council	.....	Nov. 11
*Architectural Draughtsman	WakefieldCountySurv.	130l.	No date

Those marked with an Asterisk (*) are advertised in this number. *Competitions, p.* iv. *Contracts, pp.* iv., vi., *and* viii. *Public Appointments, pp.* xx., xxi. *and* xxiii.

MEETINGS.

FRIDAY, OCTOBER 13.

Architectural Association.—Annual General Meeting: Address by the President, Mr. E. W. Mountford. 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. Keith D. Young on "Sanitary Building Construction." 8 p.m.

SATURDAY, OCTOBER 14.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Visit to the Express Dairy Company's Farm, College Farm, Finchley. 3 p.m.

MONDAY, OCTOBER 16.

Liverpool Architectural Society.—Opening Address by the President, Mr. H. Hartley. 6.30 p.m.

TUESDAY, OCTOBER 17.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Mr. W. C. Tyndale on "Sanitary Appliances." 8 p.m.—Visit to the East London Soap Works, Bow.

Glasgow Architectural Association. — Mr. Gilbert Thomson, M.A., on "Modern Drainage Arrangements." 8 p.m.

WEDNESDAY, OCTOBER 18.

Builders' Foremen and Clerks of Works' Institution.—Quarterly Meeting of the Members. 8.30 p.m.

FRIDAY, OCTOBER 20.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. J. Wright Clarke on "Details of Plumbers' Work." 8 p.m.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

20,181.—DRY CLOSETS: *L. Harris and another.*—According to this invention the floor of the closet is sufficiently raised to form a cavity or chamber underneath for receiving the ashes from riddling cinders. These ashes are fed into a receptacle and delivered through a riddle or sieve into the pan. Provision is also made for removal.

21,064.—FLOORING COMPOSITION: *H. Lockwood.*—Burnt oxide of iron obtained in the manufacture of sulphuric acid resulting from purification of coal-gas is employed; it is mixed preferably with anthracene pitch, three of softened pitch and two of the burnt oxide being the best proportions.

2,518.—STOVES: *H. A. Daval (Paris).*—For heating and cooking, an oil-stove is provided with interchangeable tops. A casing is provided to receive and retain a grid for cooking, and a radiator is fixed when the stove is used for heating only.

10,069. — VENTILATING DRAIN COVERS: *W. H. Morgan.* — By means of this invention, a cover is employed capable of being used either as a ventilator or non-ventilator easily adjusted in both ways. This is effected by the use of an iron-plate and a rod on which the dirt-box hangs. When it is desired to close the aperture the rod is brought up and the dirt-box hermetically seals the drain.

4,527.—FRAMING OR STRETCHERS FOR CORRUGATED IRON OR STEEL SHEETING AND ROOFING: *W. Thompson.*—The invention consists in making the stretchers or framing to which corrugated sheeting or roofing is to be affixed of coupled bars of L or T section steel or iron (placed in pairs and parallel) having an open space between their edges to allow bolts or rivets to pass between.

4,771.—HEATERS FOR FIRE-PLACES: *A. J. Boult* (a communication from abroad).—This invention relates to certain improvements in fire-places and stoves in order to secure greater heating power. A hot-air place is constructed between the outer and inner walls of the house, its lower end resting on the top of a stove of novel and peculiar form, and its upper extremity opening into the room, or rooms, between the mantelpiece and the ceiling.

10,767.—SELF-STANDING SCAFFOLDS: *P. P. Nassau.*—Four square upright timbers, perforated with holes at intervals, and two of them provided at their feet with roller wheels, are so secured together by stays as to support a platform at any height for interior painting, &c. The arrangement is capable of convenient and quick alteration, or change of size and height.

10,829.—FIXING FOR SASH-CORDS: *A. E. Williams.*—This invention relates to a means of fixing the sash-cord to the sash in such a way that a broken cord can be removed and a fresh cord substituted without having to take the sash out of the frame. This is effected by providing a small clamp embracing the cord. Should the latter break, this clamp grasps it in such a way that it can be drawn up and a new sash-line substituted for the broken one.

NEW APPLICATIONS FOR LETTERS PATENT.

SEPTEMBER 25.—17,952, W. Harris, Sewer Ventilators.—17,965, J. Blennerhasset, Champfer Edge Doorway.—18,001, R. Bergfeld, Iron Stairs.—18,003, R. Bennett, Varnish.

SEPTEMBER 26.—18,026, J. Clayton, Window Frames and Sashes.—18,040, A. Ward, Ventilated Fireproof Floor.—18,075, D. Wilson, Pavements, Floors, Stair Treads, &c. — 18,082, A. Johnson and K. Lingell, Window-fastener.

SEPTEMBER 27. — 18,107, T. Fawcett, Brick-making Machinery.—18,172, A. Baer, Stair Treads.

SEPTEMBER 28.—18,185, H. Powell, Machine for the Spiral Turning of Wood.—18,204, P. Glen, Windows.—18,217, J. Churchill, Water-waste Preventers, &c., for Flushing Purposes.

SEPTEMBER 29.—18,265, S. Reeves, Nails, Screws, and Hooks.—18,318, H. Graft and F. Clarey, Plumb Indicator.

SEPTEMBER 30.—18,325, J. Harvey, Clamp.—18,379, W. Marshall, Collapsible Frames for Gates, Shutters, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

14,550, J. Murphy, Head Lights. — 15,496, The Adamant Company, Limited, and J. Wilkinson, Fireproof Flooring.—15,881, Z. Joseph de la Royère, Varnish for Woodwork.—15,919, W. Hooker and C. Fitch, Hanging Sliding Windows, to be opened from the inside for cleaning and other purposes.—15,993, W. Johnson, Machines for Pressing Bricks.—16,087, W. Beattie, Pipe Joints.—16,323, W. Dransfield, Water and Gas-pipe Hooks.—16,346, E. Dredge, Automatic Door-stop.—16,388, R. Young, Window Fasteners.—16,477, G. Vaughan, Attaching Door Knobs to their Spindles.—16,518, M. McHaffie, Making Building Blocks.—16,612, H. Libbey, Combined Spring Hinge and Door Check.—16,627, W. Hickson, Decoration of Interiors.—16,850, J. Martin, Tiles and the method of Tiling Roofs, Walls, &c.—16,948, J. Bannehr and W. Chattaway, Ventilation of Sewers.—17,023, T. Barker, Water Waste Preventer for Closet Cisterns.—17,065, H. Snell, Drain Pipes or Sanitary Tubes.—17,159, W. Wilson and W. Priest, Paints.—17,162, E. Jeffcote and J. Bates, Manufacturing Gullies, Traps, Siphons, and other Sanitary Ware. — 17,227, L. Forsberg, Planes. — 17,344, J. Mather, Ball-traps. — 17,364, E. Hughes, Ventilating Apparatus. — 17,411, W. Morton, Ornamental Materials for Decorating Walls, Ceilings, Floors, &c.—17,509, J. Crosthwaite, Fire Grates or Stoves.—17,591, C. Kinnell, Actuating Ventilators.—17,629, J. Houghton, Window.—17,679, H. Take, Machinery for Making or Cutting Bricks, &c., from Plastic Clay or other material.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

18,255, W. Crow and S. Lehmon, Gullies and Drains.—20,708, T. Payne, Fire Grates, Stove Ranges, and Slow Combustion in Stoves.—21,236, R. Williamson and J. Dyson, Archimedean Screws.—21,417, W. Bradford, Disinfecting Apparatus.—21,911, E. Ward, Syphonic Flush Cisterns.—6,544, L. Havaux, Apparatus for Cutting Glass.—14,994, J. Mathisen, Door Locks and Latches.—16,000, A. Burton, Window-fastenings.

SOME RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

OCTOBER 2.—By *Sinclair & Son:* 4, Clephane-rd., Canonbury, u.t. 52 yrs., g.r. 6*l.* 18*s.*, r. 45*l.*, 390*l.*; 23, St. Paul's-rd., u.t. 52 yrs., g.r. 7*l.*, r. 45*l.*, 415*l.*

OCTOBER 3.—By *Weston & Son:* 15, Geneva-rd., Brixton, u.t. 73 yrs., g.r. 6*l.*, r. 30*l.*, 305*l.*; 15, 27, 29, Vining-st., u.t. 75 yrs., g.r. 14*l.*, 450*l.*; 64, Claylands-rd., Clapham, u.t. 30 yrs., g.r. 4*l.* 10*s.*, r. 30*l.*, 265*l.*—By *A. Richards:* "The Firs," Essex-rd., Enfield, f., r. 40*l.*, 600*l.*; 13, Stanford-rd., Kensington, u.t. 39 yrs., g.r. 15*s.*, r. 55*l.*, 430*l.*—By *Holcombe & Betts:* 20 to 23, Little Carlisle-st., Lisson Grove, u.t. 29 yrs., g.r. 42*l.*, 225*l.*; 90, 92, Wornington-rd., Notting Hill, u.t. 82 yrs., g.r. 15*l.*, r. 74*l.*, 540*l.*—By *H. G. Kingston* (at Spalding): "Holland House, and Cottage, High-st., Spalding, f., 2,240*l.*; two plots of f. garden land, 400*l.*; an enclosure of f. land, 4 a. 3 r. 0 p., 510*l.*

OCTOBER 4.—By *M. Hubbard:* 1, Estelle-rd., Gospel Oak, u.t. 84 yrs., g.r. 12*l.*; and 2, Courthope-road, u.t. 82 yrs., g.r. 8*l.*, 1,260*l.*—By *Drew & Son:* 3, Church-rd., Richmond, u.t. 36 yrs., no g.r., r. 34*l.*, 300*l.*; 3 and 4, Evelyn-ter., u.t. 75 yrs., g.r. 6*l.*, 300*l.*; 27 to 49 (odd), Church-rd., u.t. 56 yrs., g.r. 84*l.*, r. 541*l.*, 4,050*l.*; 33 to 39 (odd), Rosemont-rd., u.t. 32 yrs., g.r. 8*l.*, r. 75*l.*, 585*l.*; 14, Evelyn-rd., f., r. 34*l.*, 460*l.*; 5 to 17, Moses Cottages,

u.t. 87 yrs., g.r. 39*l.*, land-tax 1*l.* 11s. 1d., 675*l.*; 18, Cambridge-rd., u.t. 34 yrs., g.r. 10*l.*, r. 60*l.* 370*l.*

OCTOBER 5.—By *A. Watson:* F.g.r. of 80*l.*, Selby-rd., Anerley, reversion in 72 yrs., 2,000*l.*—By *Field & Sons:* 289, Lower-rd., Rotherithe, u.t. 29 yrs., g.r. 4*l.* 10s., 180*l.*—By *Glover & Harrison:* 112, Bedford Hill, Balham, u.t. 83 yrs., g.r. 14*l.* 14s., 400*l.*—By *Newbon & Co.:* 99, Highbury Hill, Highbury, u.t. 70 yrs., g.r. 10*l.*, r. 65*l.*, 400*l.*; 5, 6, 13, 22, Marian-st., Homerton, f., 610*l.*; 80, 82, 84, Chalgrove-rd., Hackney, u.t. 80 yrs., g.r. 10*l.* 10s., 375*l.*—By *Driver & Co.* (at Maidstone): "Little Mill Farm," Marden, Kent, 34 a. 0 r. 11 p., f., 1,000*l.*—By *Wilkinson, Son, & Welch* (at Brighton): 30, Ventnor Villas, Hove, f., r. 80*l.*, 1,370*l.*; 61, 63, Blatchington-rd., f., r. 58*l.*, 1,100; 19, Goldstone Villas, f., 1,550*l.*; 5, 8, Albany Villas, c., r. 138*l.*, 2,130*l.*; 6, 25, Osborne-st., c., r. 54*l.*, 850*l.*

OCTOBER 6.—By *Driver & Perfect:* 49, Rupert-rd., Holloway, f., 250*l.*; 47, Rupert-rd., u.t. 69 yrs. g.r. 3*l.* 3s., 160*l.*—By *Matthews & Matthews:* F.g.r. of 42*l.*, Pelham-rd., Wimbledon, reversion in 87 yrs., 885*l.*; f.g.r. of 30*l.*, Aitken-rd., Catford, ditto in 84 yrs., 625*l.*; 103, Upper Richmond-rd., Putney, u.t. 71 yrs., g.r. 11*l.* 10s., 600*l.*—By *E. Holsworth:* 62, Cazenove-rd., Stoke Newington, u.t. 84 yrs., g.r. 10*l.*, 750*l.*—By *Henry & Latchford:* 85, 87, High-st., Clapham, f.; and plot of land, 5,000*l.*; "Wharncliffe," King's-rd., u.t. 41 yrs., g.r. 14*l.*, 1,000*l.*; 1, 2, 3, Hope Cottages, Mitcham, f.; and plot of land, 550*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	9/0/0 0/0/0
Teak, E.I.	load	9/10/0 13/0/0
Sagonia, U.S.ft.cu		2/3 2/6
Ash, Canada load		2/0/0 3/5/0
Birch, do.		2/10/0 3/10/0
Elm, do.		2/15/0 4/0/0
Fir, Dantsic, &c.		1/5/0 2/10/0
Oak, do.		2/10/0 5/0/0
Canada		5/10/0 7/0/0
Pine, Canada red		3/10/0 3/10/0
Do. Yellow		2/10/0 4/15/0
Lath, D'ntsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Wainscot, Riga, &c., log		2/10/0 4/15/0
Odessa, crown		2/10/0 4/15/0
Deals, Finland and 6 1st std	100	7/10/0 10/0/0
Do. 4th & 3rd	..	7/0/0 7/10/0
Do. Riga		7/0/0 8/10/0
St. Petersburg, 1st yellow		9/10/0 13/0/0
Do. 2nd yellow	..	7/10/0 8/10/0
Do. white		8/0/0 10/10/0
Swedish		7/10/0 15/10/0
White Sea		7/10/0 16/0/0
Canada, Pine 1st		22/0/0 29/0/0
Do. do. 2nd	....	16/10/0 18/0/0
Do. do. 3rd &c.		7/10/0 10/5/0
Do. Spruce, 1st		9/0/0 11/0/0
Do. do. 3rd & 2nd		6/10/0 7/15/0
New Brunswick		6/0/0 7/5/0
Battens, all kinds		3/0/0 15/0/0
Flooring boards, sq., 1 in. prep. 1st		0/10/0 0/14/6
Do. 2nd		0/7/6 0/12/6
Other qualities—		0/5/0 0/7/0
Cedar, Cuba	..ft.	1/4 1/4½
Honduras,	..&c	3/4 1/4½
Mahogany, Cuba		1/4 1/6½
St. Domingo, cargo av.		1/3 2/6
Mexican do. do.		1/3½ 1/4½
Tobasco do. do.		1/3½ 1/6
Honduras do.	..	1/4 1/5½
Box, Turkey	ton	4/0/0 13/0/0
Rose, Rio		9/0/0 20/0/0
Bahia		7/0/0 18/0/0
Satin, St. Domingo		0/0/6 0/1/3

TIMBER (*continued*).		
Satin, Porto Rico	0/0/7	0/1/6
Walnut, Italian	..	0/0/3½ 0/0/7

METALS.		
Iron—Pig, in Scotland	ton	2/2/2½ 0/0/0
Bar, Welsh, in London		5/17/6 6/0/0
Do. do. at works in Wales		5/7/6 5/10/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British, cake and ingot		45/0/0 45/5/0
Best selected	..	46/0/0 46/5/0
Sheets, strong	..	54/0/0 0/0/0
Chili, bars		41/13/9 42/1/3
YELLOWMETALib		0/0/4½ 0/0/5
LEAD—Pig, Spanish	ton	9/10/0 9/12/6
English com. brands		9/12/6 9/15/0
Sheet, English, 6 lbs. per sq. ft. and upwards		11/0/0 0/0/0
Pipe		11/10/0 0/0/0
ZINC—English sheet	ton	21/5/0 0/0/0
Vieille Montagne		21/15/0 0/0/0
TIN—Straits		73/0/0 78/10/0
Australian		79/0/0 79/10/0
English Ingots	..	85/0/0 85/10/0
Banca		89/10/0 0/0/0
Billiton		83/0/0 84/0/0

OILS.		
Linseed	ton	21/0/0 21/2/6
Cocoanut, Cochin		33/0/0 0/0/0
Do. Ceylon		27/10/0 0/0/0
Palm, Lagos		27/10/0 0/0/0
Rapeseed, English pale		23/15/0 0/0/0
Do. brown		22/0/0 21/5/0
Cottonseed ref.		22/5/0 0/0/0
Oleine		22/0/0 24/0/0
Lubricating, U.S.		4/0/0 5/0/0
Do. refined		5/10/0 12/0/0
TAR—Stockholm barrel		0/18/6 0/0/0
Archangel		0/12/6 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

BARNSLEY.—For the erection of two small special wards at the Kendray Hospital, for the Town Council. Mr. J. H. Taylor, C.E., Borough Surveyor, St. Mary's-place, Barnsley:—
G. Kymer, Lindley, Watling, & Rushforth, Barnsley ..£310

BECKENHAM.—For the construction of six flushing tanks on the Birkbeck Estate for the Beckenham Local Board. Mr. G. B. Carlton, C.E., Surveyor:—

Patent Paving & Construction Co.	£837	14	6
S. & W. Pattinson	498	0	0
W. Meats	470	6	0
J. J. Richards	395	7	3
[Engineer's Estimate	£401	0	0.]
Mowlem & Co.	£384	0	0
T. W. Jones	383	5	0
W. Neave & Son	368	0	0
Mid-Kent Building Co.	365	0	0
H. Woodham	359	0	0

BIRKENHEAD.—Accepted for the erection of administrative and laundry and mortuary blocks, pavilions at hospital, Flagbrick-hill, for the Corporation. Mr. Chas. Brownridge, C.E., Borough Engineer, Town Hall, Birkenhead:—
Kelly Bros., Walton, Liverpool £10,594 19 0

BROMLEY (Kent).—For new shops, bake-office, stables, &c., for the Bromley Co-operative Society, Limited. Messrs. Gooding & Cressall, architects, Colchester:—

T. D. Graty	£2,395	R. G. Lowe	£2,299
J. Crossley	2,320	J. C. Arnand & Son	2,268
D. Payne	2,300	F. P. Duthoit	2,245

BURTON-ON-TRENT.—For the construction of a sediment tank, laying 240 yards sewering, &c., for the Union Rural Sanitary Authority. Mr. Geo. Watson, surveyor, 38, Derby-road, Burton-on-Trent:—

Jennings	£228	0	0
Jos. Dennis	145	0	0
Brookes	116	5	5
Clarke	£111	16	0
Simpkins, Linton, Burton-on-Trent*	98	16	6

* Accepted. Not to include turf burning.

BURY (Lancs.).—Accepted at per schedule of prices for forming, paving, &c., sixteen streets, for the Corporation:—
John Greenhalgh, Bury | F. & W. Woodhead, Bury
Peter Booth, Brightnet | B. Hall, Bury

CHELTENHAM.—For the erection of fever blocks, Delaney Hospital, Leckhampton, for the Delaney trustees. Messrs. Middleton, Prothero, & Phillott, architects, Cheltenham. Quantities by Mr. F. E. Godwin, surveyor, Gloucester:—

	Block A.	Block B.	And other works.
Hatherley & Carr	£5,598	£4,887	£828 0
John Williams	5,591	4,854	815 0
Stephens, Bastow & Co., Limited	5,558	4,827	816 0
Charles Jackson	5,472	4,748	789 0
H. Willcock	5,369	4,715	823 0
Wm. Bowers & Co.	5,085	4,560	787 5
Malvern & Son	5,163	4,628	306 0
A. C. & S. Billings	4,987	4,365	743 0
D. C. Jones & Co.	5,462	4,720	845 0
Wm. Jones	4,960	4,382	703 0
Thos. Collins	4,196	4,324	692 0

CRAYFORD (Kent).—For new roads on "The Wansunt Park Estate." Mr. St. Pierre Harris, surveyor, 1, Basinghall-street, E.C., and Orpington:—

	Contract No. 1.	Contract No. 2.
Peill & Sons	£343 0 0	£231 3 8

DARTFORD.—For erecting eight additional blocks at the Gore Farm Hospital near Dartford, Kent, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street, E.C.:—

T. Osborn	£34,414	Rochelle, Gover, & Smith	£27,571
J. & M. Patrick	34,329		
Shillitoe & Son	30,000	C. Miskin	27,129
Leslie & Co.	29,652	L. Seager	27,027
T. Knight	29,043	W. Johnson & Co. Ltd., Wandsworth Common*	26,700
E. Lawrence & Son	28,262		

* Accepted.

EAST STONEHOUSE (Devon).—For the erection of school buildings, &c., High-street, for the School Board. Mr. H. J. Snell, architect, 13, Courtenay-street, Plymouth. Quantities by the architect:—

A. Andrews	£5,685	10	A. R. Lethbridge & Son	£4,937	0
J. Goad & Co.	5,644	0	A. N. Coles	4,790	0
W. Trevena	5,400	0	A. R. Debnam & Son	4,728	0
G. Shellabear	5,300	0	Westlake & Waldron	4,670	0
J. Partridge	5,243	0	T. May, Plymouth*	4,577	0
Jenkins & Son	5,089	0	G. B. Turpin (with-drawn)	3,400	0
Tozer & Son	5,066	0			
J. Finch	4,958	0			
Roach & Lovell	4,950	0			

* Accepted.

ENFIELD.—For sanitary work at Enfield Workhouse, for the Guardians. Mr. T. E. Knightley, surveyor, 106, Cannon-street, E.C.:—

Hardman	£153	10	H. Knight & Son	£125	0
Perry	129	0	A. Fairhead & Son*	93	0
G. L. Wilson & Co.	128	0			

*Accepted.

HALIFAX.—For the erection of school buildings, for the Trustees of Wainstalls' Mount Pleasant Chapel:—
Mason's Work.—Foster Bros. £100 0 0
Joiner's Work.—Charnock & Sons 80 0 0
Plasterer.—G. Barret 25 10 0
Plumber.—Sutcliff 33 0 0
Painters.—Messrs. Hinchliff & Hainsworth 4 15 0

HALIFAX.—Accepted for taking down and rebuilding premises, Bull Green, Halifax, for Messrs. Scratcherd & Co. Messrs. Jackson & Fox, architects, 22, George-street, Halifax. Quantities by the architects:—
Mason.—Joseph Harrison, Halifax £230 0 0
Joiner.—Geo. Crabtree, Halifax 53 0 0
Slater and Plasterer.—John Firth, Halifax 13 10 0
Plumber and Glazier.—Wm. Nettleship, Halifax 18 15 0

HAMMERWICH.—For new rectory for the Rev. C. E. Frossard. Messrs. J. R. Veall & Son, architects, Wolverhampton:—

T. Skett	£1,630	J. Reynolds	£1,450
A. Gilbert	1,549	Guest & Son	1,440
Willcock & Co.	1,495	H. Lovatt, Wolverhampton (accepted)	1,430
H. Gough	1,470		

HEREFORDSHIRE (Ross.).—Accepted for alterations and additions to "Aston Court," for Mr. M. K. Power, J.P. Mr. Arthur Pole Small, architect, Ross:—
W. H. Smith, Weston-under-Penyard £945 0 0

HEREFORDSHIRE (Ross.).—Accepted for alterations and additions to "Kingstone Farm House," for Mr. Joseph Jones, Wolverhampton. Mr. Arthur Pole Small, architect, Ross:—
W. H. Smith, Weston-under-Penyard £480 0 0

HERTFORD.—For supplying and laying 570 yards cast-iron water-mains, &c., for the Corporation. Mr. T. R. Dickinson, Borough Surveyor, Hertford:—

H. Norris	£259	11	9
J. Jackson	242	14	7
S. Hipwell	242	12	2
J. J. Rayment & Son	234	0	0
Biggs, Wall, & Co.	230	4	9
Hughes & Gotto	£226	15	3
W. E. Hampton & Co.	211	8	0
Ekins & Co., Hertford (accepted)	200	10	0

HIGHER BEBBINGTON.—For kerbing, channelling, &c., Old Chester-road, for the Local Board. Mr. G. M. Lloyd, Surveyor, King-street, Rock Ferry, Birkenhead:—

Thomas Myers	£440	0	0
W. F. Chadwick	374	5	0
John Morgan	351	10	2
Stirling Swan	350	0	0
W. E. Maddock	£321	8	9
John Barnes	300	0	0
John Burnham	297	7	0

HUDDERSFIELD.—For additions, &c., to South Crossland church schools, for the managers. Mr. E. W. Lockwood, architect, 34, Byram-arcade, Huddersfield:—
Brick and Mason.—A. & J. Noble, Honley £270 0 0
Carpenter and Joiner.—Moorhouse & Taylor Meltham 96 0 0
Plumber and Glazier.—D. Taylor & Sons, Lockwood 32 19 6
Painters.—Wm. Littlewood & Son, Netherton .. 11 0 0
Plasterer.—Jas. Wilkinson, Meltham 14 10 0
Slaters.—Pickles Bros., Huddersfield 16 0 0
Heating.—F. Milan, Lockwood 75 0 0

HUNSTANTON.—For the erection of a residence on the Glebe Building Estate. Messrs. G. Fitt & Co., architects, 1, Queen-street, Norwich. Quantities by architects:—

A. Brown & Co.	£2,069	0	Solden Hipwell	£1695	10
E. Girling & Co.	1,946	0	John Nelson	1,400	0
Collins & Barber	1,880	0			

INVERNESS.—For the construction of a complete system of drainage, for the Northern Counties District Asylum. Mr. R. Black, engineer, 22, Union-street, Inverness:—

H. E. Black	£1,353	13	0
George Shanks	1,178	0	0
Roderick Fraser	1,085	0	0
Mackay & Maclean	1,082	0	0
D. Chisholm & Son	1,045	0	0
Thos. Macdonald	£1,025	0	0
Thos. Macdonald	999	19	3
R. C. Brebner	988	0	0
Roderick Mackay, Aberdeen*	922	0	0

* Accepted.
[Engineer's estimate, £1,150.]

LONDON.—For engineering work, consisting of boiler, laundry, machinery, hot-water supply, and warming apparatus, at the new workhouse, St. Pancras, for the Guardians of St. Pancras. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street, E.C.:—

Clements, Jeakes, & Co.	£8,050	J. & F. May	£7,645
W. J. Fraser	8,270	Benham & Son (accepted)	7,050
Berry & Sons	7,895	J. Fraser & Son (withdrawn)	6,440

LONDON.—For alterations and additions, 15, Pembridge-gardens, W., for Captain Ross. Mr. Parnacott, F.S.I., surveyor, 93, York-road, Westminster Bridge-road:—

Lapthorne & Co.	£598	0	Hearne & Co.	£467	0
Peacock Bros.	488	10	Dowsing & Sons	440	0

LONDON.—For the erection of baths and washhouses, Tibberton-square, Islington, N. Mr. A. Hessel Tiltman, F.R.I.B.A., architect:—

		Add, if work done in nine months.
John Allen & Sons	£38,965	—
Wilkinson Bros.	38,400	—
Lawrence & Sons	37,773	—
McCormick & Sons	36,903	£1,000
Wm. Shurmur	36,882	450
Howell J. Williams	36,840	250
H. L. Holloway	36,700	500
Wm. Shepherd	35,862	1,000
J. O. Richardson	35,758	600
Grover & Sons	35,748	500
Treasure & Son	35,697	350
Lorden & Son	34,598	630
Macfarlane Bros. (accepted)	33,886	—

LONDON.—For the erection of a dwelling-house and shop at Forest Hill, for Mr. R. Dean. Mr. J. Randall Vining, of 89, Chancery-lane, and Mr. H. Lewis Upham, joint architects. Quantities supplied:—

W. Johnson & Co.	£987	J. & C. Bowyer	£849
Waddington & Co.	922	A. Black & Son	840
W. Wallis	917	Wightwick & George	816
R. H. Walker	915	T. Roberts & Co.	806
A. Sykes	874		

LONDON.—For alterations and additions to No. 26, Northcote-road, Clapham Junction, for Messrs. Grantham & Company. Mr. A. W. Tribe, architect, 91, Clapham-road, S.W.:—

J. Cutler	£488	Peacock Bros.	£468
Whitehead & Co.	469	Hoare & Son, Blackfriars*	449

*Accepted.

LONDON.—Accepted for new blacking factory and boiler-house, for Messrs. R. Carr & Son, Crown-place, Kentish Town, N.W. Mr. J. B. Pinchbeck, architect:—
H. G. Davenhill, Gospel Oak, N.W. £2,200 0 0

LONDON.—For sundry works in converting the present basement and ground-floor stores of the Griffin Brewery, Chiswick, into bottling stores and drying-rooms, &c., for Messrs. Fuller & Co. Messrs. R. L. Curtis & Sons, surveyors:—

Hollingsworth	£570	Hunt	£459
Watson	510	Nye	415
Dorey	460		

LONDON.—Accepted for repairs at St. Stephen's Vicarage, Shepherd's Bush:—
W. Brown, Shepherd's Bush £189 10 0

LONDON.—Accepted for the erection of a house at Hans-road, Chelsea, S.W., for Mr. Archibald Grove, M.P. Messrs. Mackmurdo Hornblower, & Walters, architects, 20 Fitzroy-street, W.:—
Thos. Gregory & Co. £3,489 10 6

LONDON.—Accepted for works of under-pinning and repairs at "Wolverton House," Finchley, for Mr. J. C. Rathgeb. Mr. St. Pierre Harris, architect and surveyor, 1, Basinghall-street, E.C., and Orpington:—
Geo. Johnson £211 0 0

LONDON.—For alterations to St. George's Hall, High-street, Wandsworth:—

Beer & Gash	£1,700	J. O. Richardson	£1,129
Holloway Bros.	1,394		

MANSFIELD WOODHOUSE (Notts).—For sewerage works, Warsop-road, for the Local Board. Mr. Frank P. Cook, C.E., Surveyor, Local Board Offices, Mansfield Woodhouse:—

W. A. Vallance	£200	0	0
Jno. Lane	137	15	0
Jno. Ashley	126	11	10
Jno. Murphy	£111	3	8
Fisher Bros., Mansfield (accepted)	105	0	0

NOTTINGHAM.—For the erection of a retaining wall and other works, Colliery-road, for the Corporation. Mr. Arthur Brown, C.E., Borough Engineer, Guildhall, Nottingham:—

Philbrick	£5,600	0	0
S. & E. Bentley	5,077	4	3
Hodson & Son	4,995	0	0
J. F. Price	4,541	9	0
Cope & Raynor	4,132	0	0
J. H. Vickers	3,950	0	0
S. Thumbs	£3,850	0	0
J. Tomlinson	3,949	0	0
T. Smart	3,740	0	0
H. Vickers, West Nottingham*	3,540	0	0

*Accepted.

REDHILL.—For a detached house at Redhill, Surrey:—

	House.	Conservatory.
W. Bagaley & Son	£2,850	£120
R. Peat	2,400	110
T. Bushby	2,372	82
R. B. Apted	2,366	78
J. Buckland	2,324	—
J. Smith & Son	2,310	65

SALISBURY.—For rebuilding a shop and dwelling-house at the corner of New-street and High-street, for Messrs. Alesworth & Co. Messrs. Jno. Harding & Son, architects 51, Canal, Salisbury:—

F. Dibben	£720	0	Webb & Co.	£667	0
Kellow & Smith	694	0	Wort & Way	665	0
Edw. Hale	685	0	H. J. Kite, Salisbury*	565	0
Vincent & Folland	670	10			

*Accepted.

SOUTHAMPTON.—For the supply of stone, and for street improvements for the Corporation. Mr. W. B. G. Bennett, C.E., Engineer, Southampton:—
For 1,000 tons of 2 in. Cherbourg Quartzite.

W. L. Somerfield (for Lessines Granite)	£525	0	0
Sandell Bros., Southampton*	512	10	0
William Hudson	483	6	8

For 500 yds. of hand-picked flints.

Joseph Webb, Whitchurch*	200	0	0

For Kerbing, channelling, making up, and draining Brookvale-road, Southampton.

Roe & Grace	£465	0	0
Crook and Batten	443	17	0
F. Osman, Southampton*	437	0	0

* Accepted.

STANLEY (Durham).—Accepted for the erection of Sunday-school buildings, Oxhill. Messrs. Davidson & Bendle, architects, No. 33, Grainger-street West, Newcastle-on-Tyne:—
John Gladders, Bainopfield, co. Durham £276 7 0

STONE (near Dartford).—For the erection of a new Board School for 100 infants, and outbuildings, at Bean. Mr. J. T. Walford, architect, Northfleet. Quantities supplied:—

Dearing	£1,427	Multon & Wallis	£986
Jackson	1,169	Goose	979
Linfield	1,147	Richardson	969
Tuffee	1,133	Slade	966
Avard	1,127	Laurence	927
Rochelle, Gover, & Smith	1,060	Trappet & Batley	905
Watson	1,040	Mitchell	889
Knight	999	Gates	886
Rayfield	996	Seager, Sittingbourne*	885
Horscroft & Mills	993	Longhurst (withdrawn)	693

* Accepted subject to the approval of the Education Department.

STONE.—For the erection of a new Board School for 350 children, master's house, and outbuildings, at Brent. Mr. J. T. Walford, architect, Northfleet. Quantities supplied:—

Linfield	£4,692	Goose	£3,974
Dearing	4,560	Richardson	3,959
Jackson	4,388	Slade	3837
Rochelle, Gover, & Smith	4,256	Multon & Wallis	3.799
Knight	4,120	Horscroft & Mills	3.774
Avard	4,047	Trappet & Batley	3.545
Tuffee	4,023	Mitchell	3.457
Watson	4,020	Gates	3.444
Laurence	3,982	Seager, Sittingbourne*	3.338
Rayfield	3,981		

*Accepted subject to the approval of the Educational Department.

SUNDERLAND.—For the erection of school buildings, Chester-road, Bishopwearmouth, for the School Board. Messrs. Oliver & Leeson, architects, Newcastle-on-Tyne. Quantities by Messrs. Boreham & Morton, Sunderland:—

Thomas Lumsden	£14,800 0	Thomas P. Shaftoe	£12,680 0
John W. White	14,295 10	W. B. Cooper	12,079 0
Walter Scott	13,466 0	D. & J. Ranken	11,975 0
John Elrick	13,351 0	Geo. H. Hodgson, Sunderland*	11,888 0
Joseph Elliott	12,390 0		
Robert Allison	12,785 0		

* Accepted.

UPPER WARLINGHAM (Surrey).—For the erection of a residence in Landscape-road, for Mr. D. G. Crisp. Mr. T. Walter Moss, architect. Quantities by Mr. A. Gate:—

Cole & Son	£1,666	Maids & Harper	£1,575
Oldridge	1,632	Ward	1,474
Tombs	1,619	H. Somerford & Son*	1,398

* Accepted subject to modifications.

WIRRAL (Lancs.).—For the erection of a general hospital at Clatterbridge Workhouse, for the Union Guardians. Mr. A. Culshaw, architect, 3, Union-court, Liverpool. Quantities by Messrs. Howorth & Son, Whitechapel, Liverpool:—

Jones & Bancroft	£4,317 10	Morrison & Sons	£3,380 0
Jas. Kitchen	3,980 0	Hughes & Stirling	3,365 0
Jas. Holme	3,963 0	McLachlan & Batkin	3,238 6
J. Blanchard & Son	3,579 0	Tomkinson & Sons	3,225 0
Brown & Backhouse	3,545 0	Kelly Bros.	3,201 0
J. Paterson & Sons	3,539 0	J. Barnes	3,200 0
J. Lee & Sons	3,534 5	W. H. Bleakley & Co., Birkenhead*	2,970 0
Thos. Browne	3,427 16		

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6. Exeter	14. Hereford			29. Manchester	
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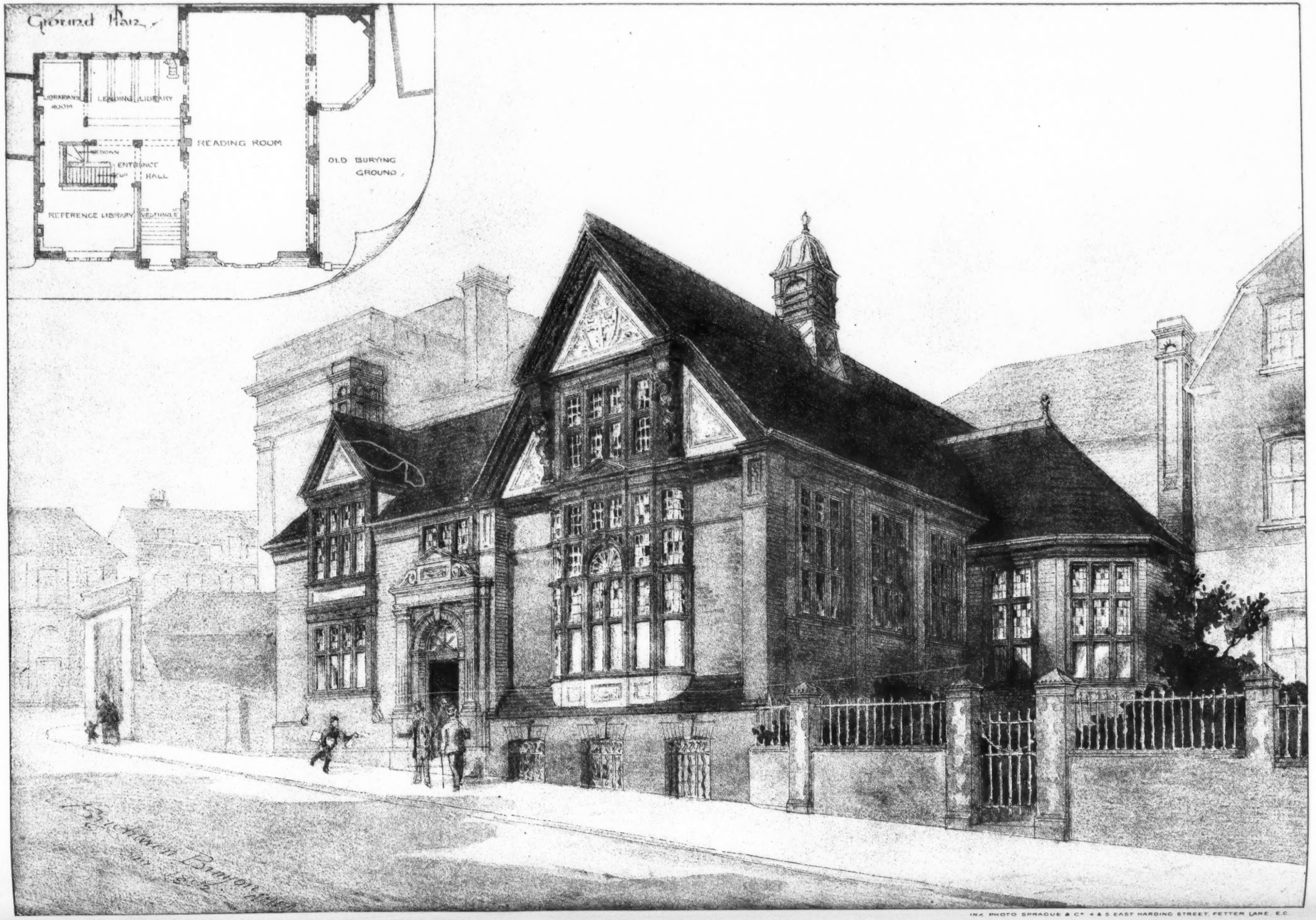

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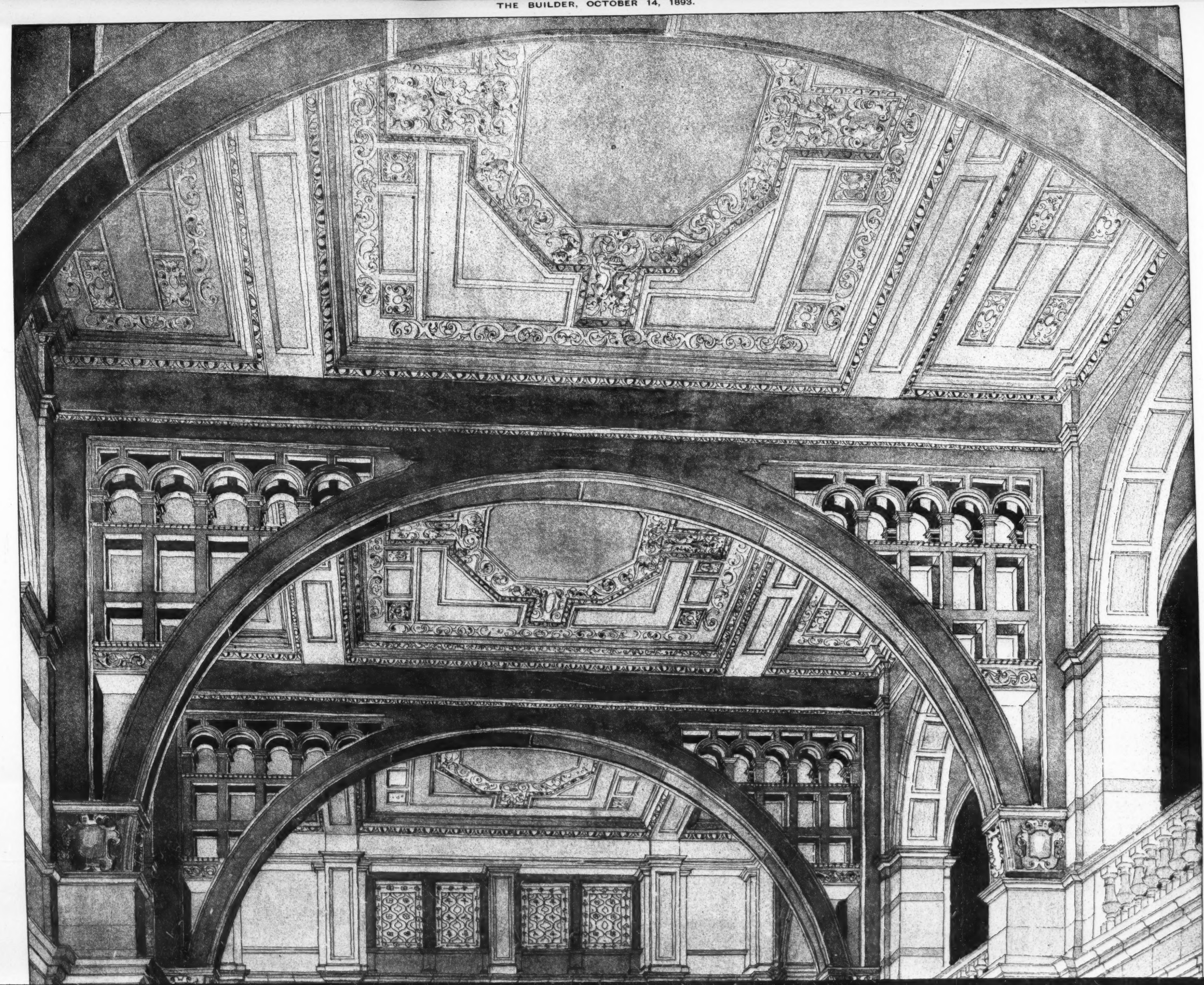
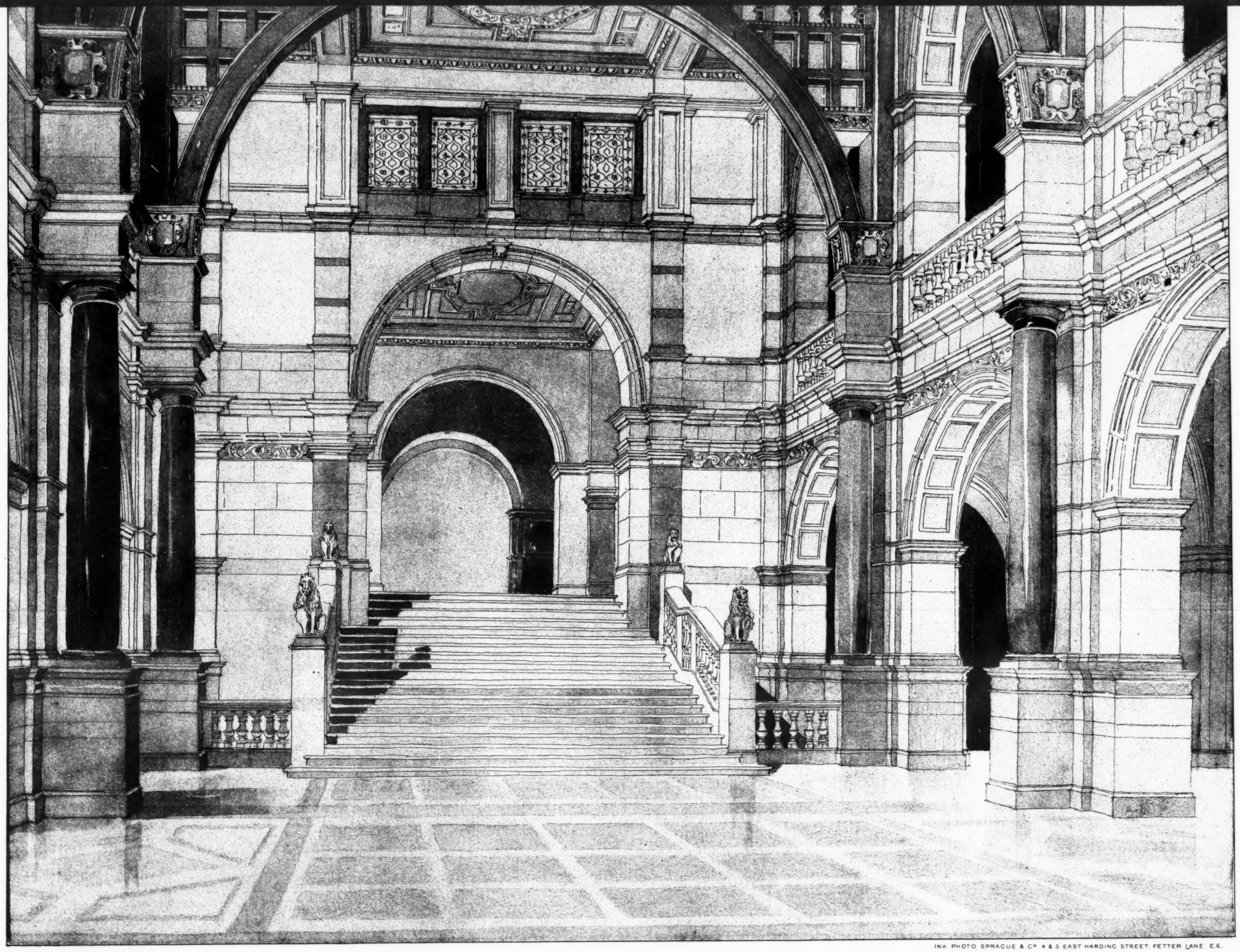
Royal Academy Exhibition, 1893.





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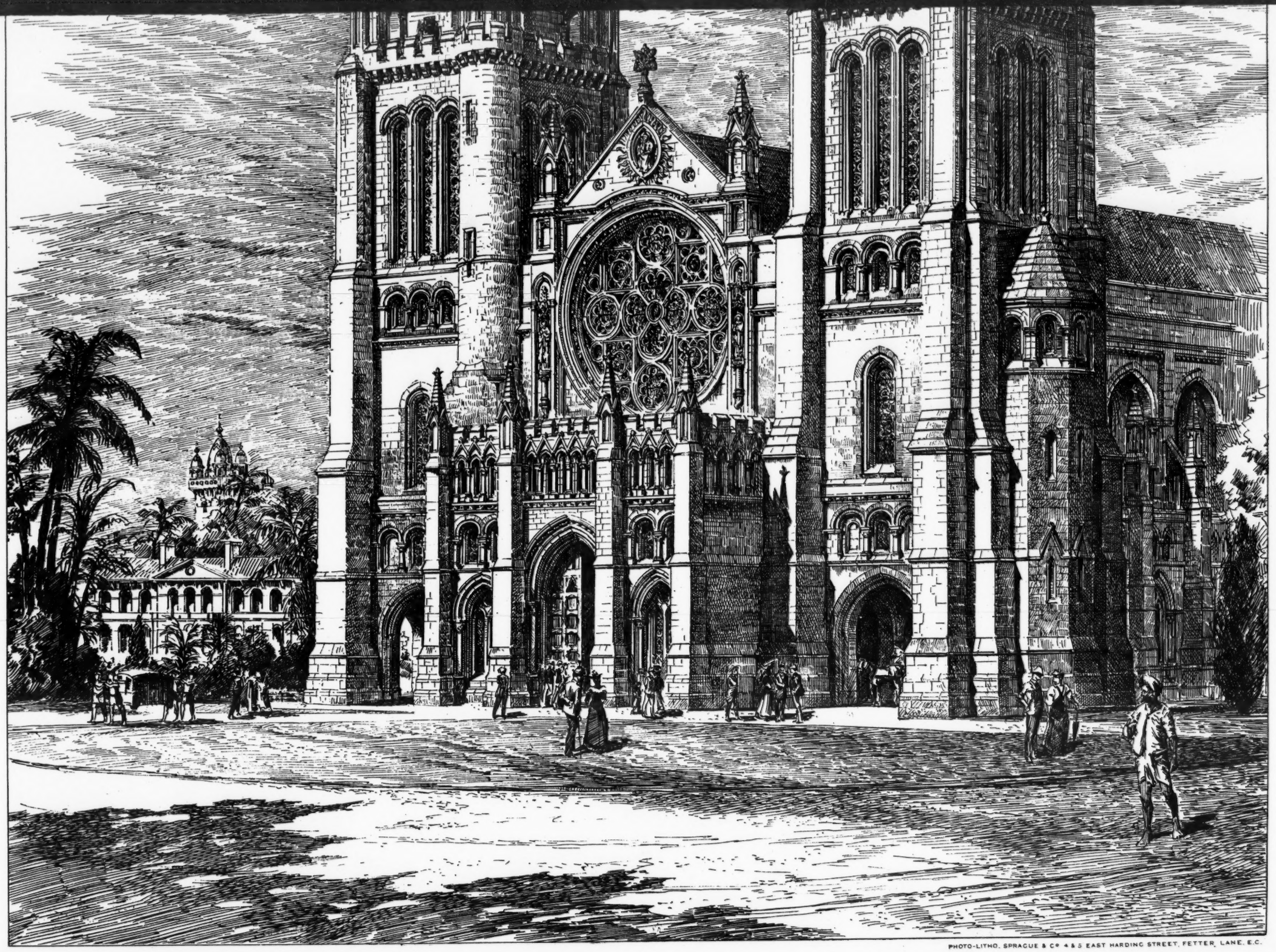

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WEST FRONT OF THE CATHEDRAL FOR THE NEW LUCKNOW DIOCESE, INDIA.—Mr. W. Emerson, F.R.I.B.A., Architect.

Royal Academy Exhibition, 1893.

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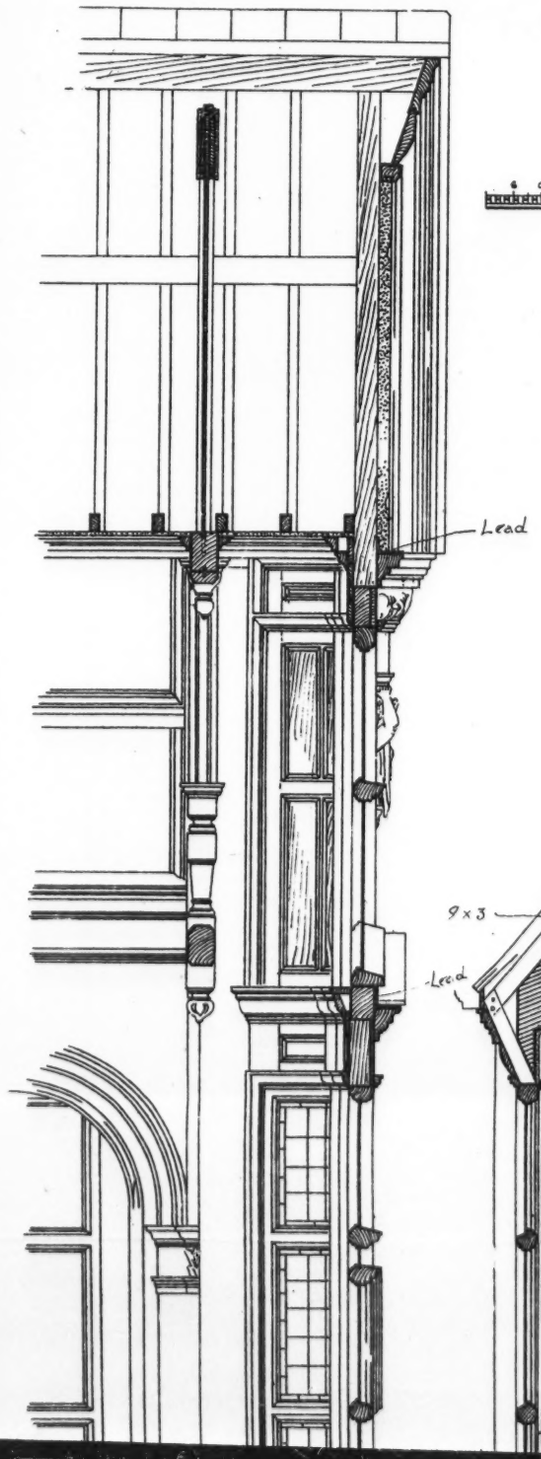
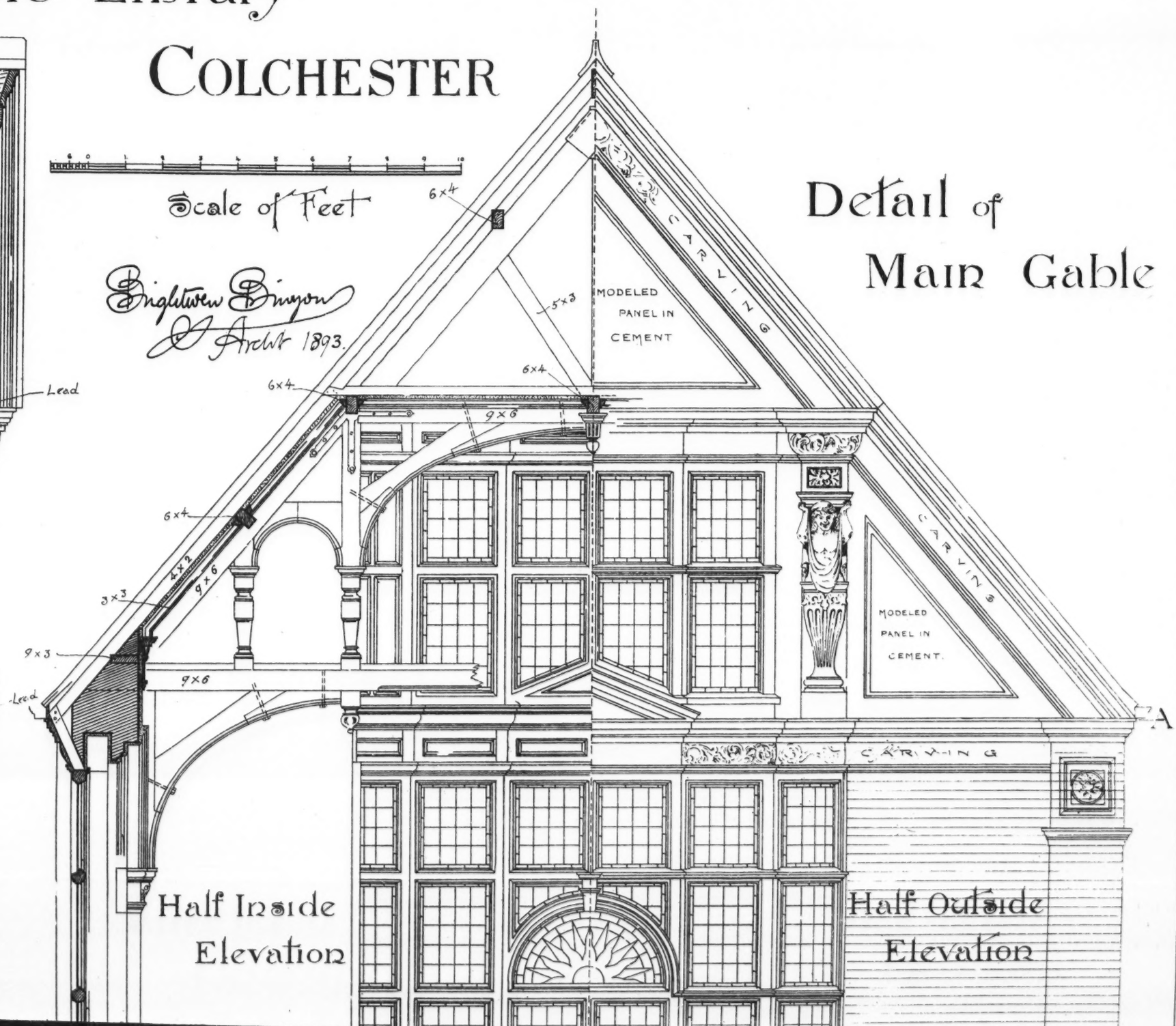
Scale of Feet

Brightwen Binyon
Archt 1893.

Detail of Main Gable





Half Inside Elevation

Half Outside Elevation

Half Inside Elevation

Half Outside Elevation

PLATE GLASS

B

PAVEMENT LINE

Section

Plan at A.

2'.0"

4'.0"

6'.9"

Plan at B.

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